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NOVEMBER 25, 1926

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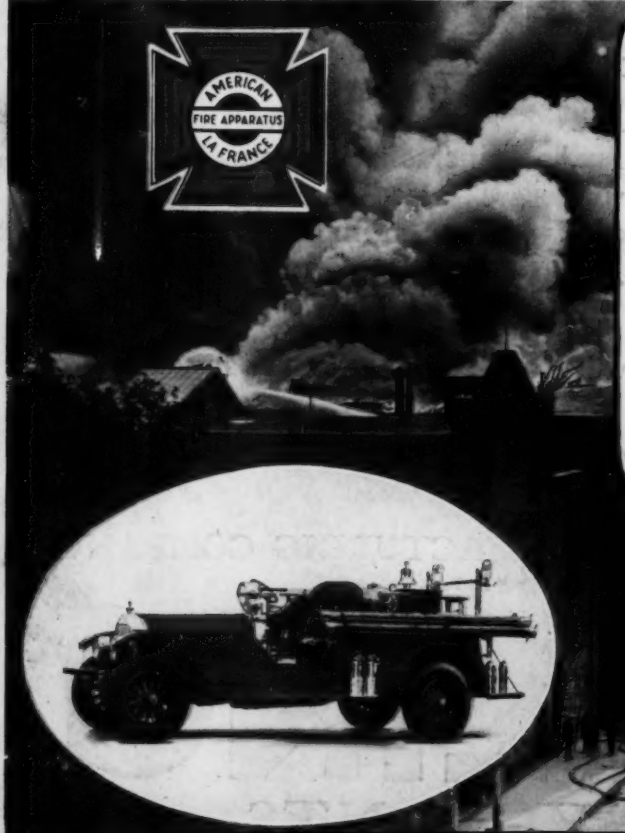

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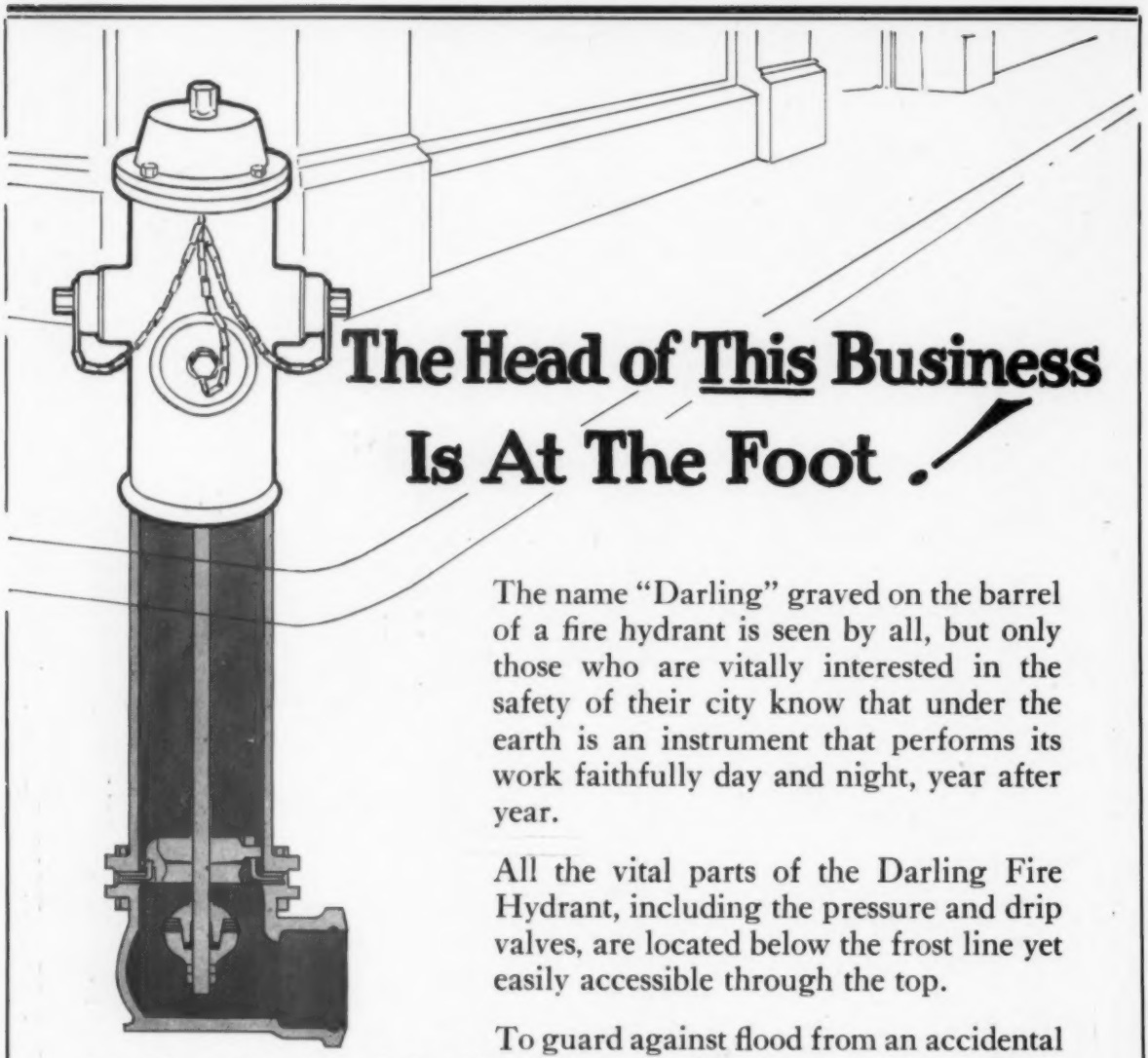

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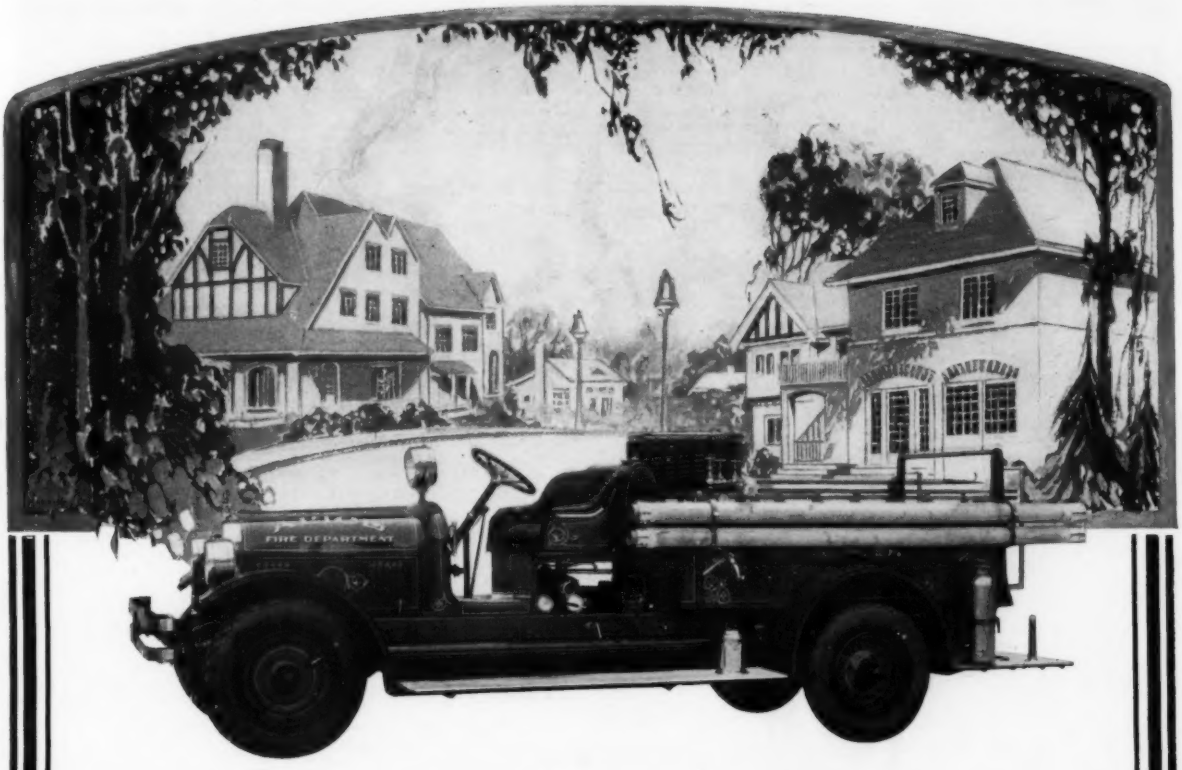

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KARL M. MANN
President and Advertising Director

FRED SHEPPERD
Managing Editor

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Vice-Pres. and General Manager

H. S. ESSEX, Advertising Manager; ROBERT H. LOCKWOOD, Editor; N. N. WOLPERT, Asst. Editor

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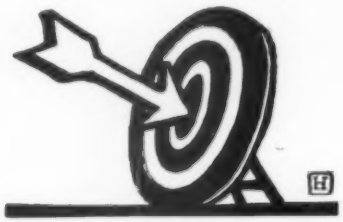

ACCURACY—

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In which respect we are pretty much like the old newspaper editor who always had a sign posted above his desk that read "Accuracy! Accuracy! Accuracy!" This he always pointed out to new reporters.

One day a new member of the staff came in with his report of a public meeting. The editor, in reading through, came to this sentence:

"Three thousand nine hundred and ninety-nine eyes were fixed upon the speaker."

"What do you mean by making such a silly blunder like that?" he demanded wrathfully.

"But it's not a blunder," protested the young man. "There was a one-eyed man in the audience!"

Facts or figures—they have got to be right before they are published in FIRE ENGINEERING.

If you ever run across anything in our columns that seems wrong, let us know, will you please?

The Publishers

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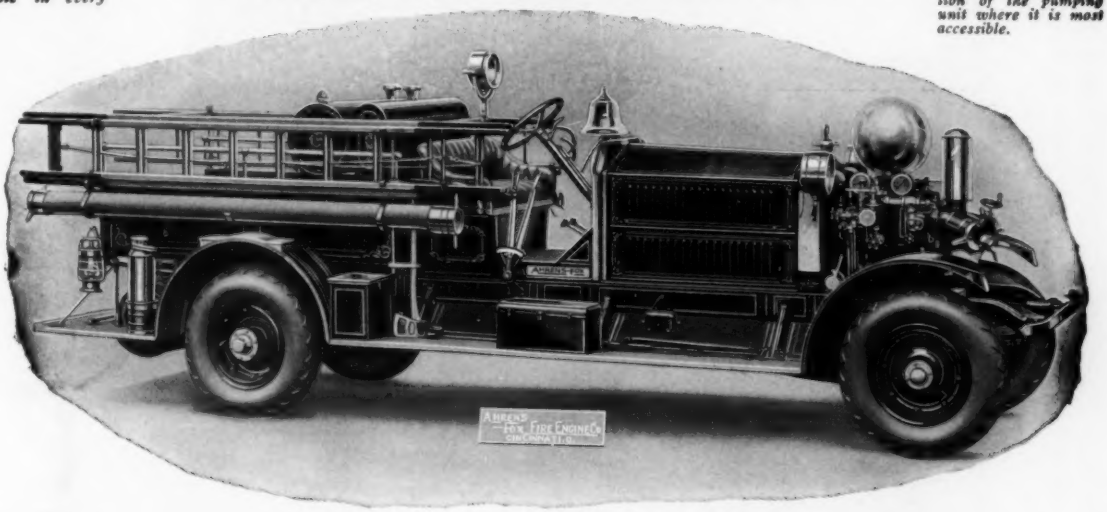

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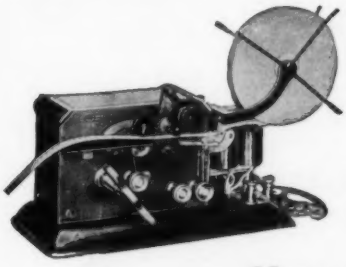
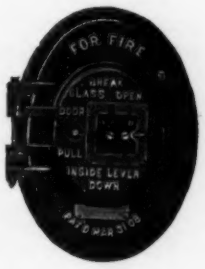


We Help Fire Chiefs to Prevent Small Fires from Becoming Big Ones



On the right is shown the A. D. T. night watchman and fire alarm box that is installed throughout A. D. T. protected property. On the left is the registering instrument which is installed in the local A. D. T. office. All boxes together with Automatic Sprinkler Supervisory Instruments are electrically connected with the registering machine. This system provides protection that is at all times positive in its relentless watchfulness.

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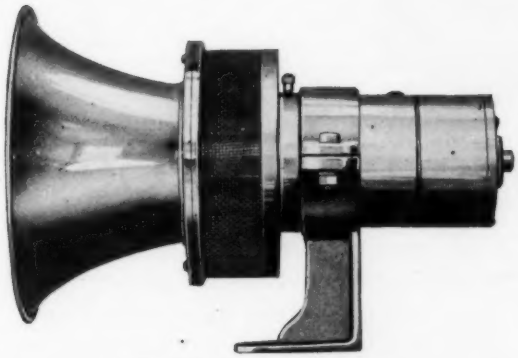

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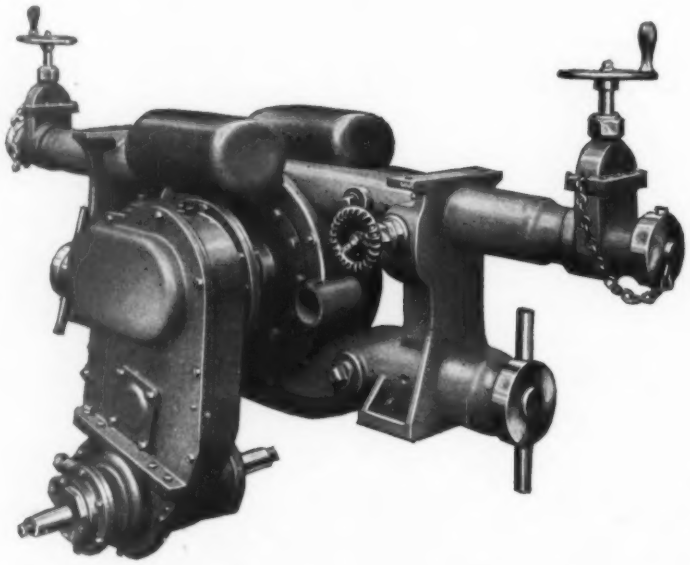

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The Leading Journal of the Fire Protection Profession

VOLUME LXXIX NOVEMBER 25, 1926 NUMBER 22

Protecting a City from Fire After a Hurricane

How the Fire Department of Miami, Fla., Prevented Fires Under the Most Adverse Circumstances—Heroic Work During the Storm

By L. L. LEE, Miami, Fla.

GREAT disasters have a tendency to bring out latent heroism and emphasize the American quality of quickly rising to meet unusual emergencies. This was true in the terrible hurricane which visited the Florida coast, and nearly wiped out among other cities, that of Miami. The following article tells graphically how the fire department of that city not only did self-forgetting work of rescue during the height of the storm but also performed the equally important work of preventing fires directly after the visitation, which if they had been allowed to occur in the unprotected state of the city would have meant its practical destruction.

Histories of American disasters show that frequently a conflagration of serious proportions follows. The most devastating hurricane ever to strike America swept over Miami, Fla., on September 18, 1926, leaving in its trail a litter of debris and rubbish that covered the city. And yet, the Miami Fire Department and Fire Prevention Bureau kept fire losses, covering a period of 16 days after the hurricane, down to $69. This damage, attributed directly to the storm, was in a wet electric motor. The figures are obtained from the official report of E. A. Westra, third assistant fire chief and chief of the fire prevention bureau.

Credit Due to Fire Department for Avoiding Conflagration

Miami avoided a conflagration, the records show, not through luck but through a precautionary system, which with 100 per cent loyalty from the city's fire fighters, gave almost perfect results.

The record is all the more significant in that a thousand fire hazards were opened up as a result of the storm which did not exist before. The spectre of no water, no power, no lights (except candles and lanterns, which made the situation all the more perilous), no telephone service and no box alarm system, loomed before the fire forces every moment of the first hours and days following the hurricane.

Lumber, wood splinters, dry tinder, rubbish, rags, furniture and underbrush littered the streets, lawns and houses, forming an almost continuous line of combustible material encircling the city. Most of the streets were blocked the first two days with debris, which presented a serious traffic problem to the fire trucks. It was recognized that a blaze, given slight headway, would have been a difficult thing to control. A candle tipped over, a carelessly tossed match or cigarette, would have been enough to start it.

Plan Formulated to Combat Fire Peril

With these things in mind the last whispers of the hurricane had not died away before a plan was formulated to combat the serious fire menace. The experience and plan may some day be of value to some other city faced with a similar problem.

With the usual fire fighting facilities paralyzed the first thought was, "We can't let a fire get started. We must prevent fires rather than put them out."

Fire Prevention Patrol Organized

Within a few hours after the storm had subsided a fire prevention patrol had been organized and flung over every section of the city. Strict orders were given to bar every attempt to start a brush or rubbish fire, whether in a public place, on the streets or on private premises. The patrol was on duty night and day and every person was ordered to dump his debris in the street from where it was immediately picked up by trucks and hauled away to especially designated and guarded fire pits.

Miami fire regulations require that a permit must be obtained from the fire prevention bureau before any rubbish may be burned. In those first days after the storm hundreds of persons, desiring to get rid of debris in the easiest way, made application for permits but all were denied.

Notices were published in the newspapers and posted on bulletin boards informing the public where open pits were located to which individuals were requested, when possible, to haul material. Notices were also published warning the public against tampering with electrical equipment of any kind until it was tested by city inspectors.

Practically Continuous Duty for Firemen

The fire patrols were composed of every available fireman off duty from his regular "trick" together with other experienced fire fighters selected from the city at large. Inspectors from the fire prevention bureau had charge of the patrols. It was a time when every fireman was in reality on duty for 24 hours each day and this emergency period lasted for several days. Each man slept "in between times" as best he might for a few minutes

Left, Some of the Wrecked Miami Buildings after the Storm. Right, the Flooded Streets.

or few hours at a time. All were subject to constant call. W. R. Coleman, chief of the fire department, was out of the city due to illness during the storm, but his five assistants, E. A. Roberts, Dan W. Irby, E. A. Westra, L. S. Jones and James Depew, functioned admirably during the emergency.

In addition to the foot patrols, walking a "beat" in each built up section of the city, automobiles were kept in constant service patrolling the storm area and outlying districts.

Methods Devised for Quickly Reporting Fires

With the fire alarm and telephone systems out of commission means had to be devised to report fires to headquarters and the nearest stations. Fast cars were stationed at strategic points and within calling distance of the patrols. In spite of the utmost precautions blazes would start and in such cases the alarm was speeded to the fire station by auto while hand extinguishers and other methods were being used on the job. Scores of incipient blazes were squelched by these methods and it was surprising how quickly fire trucks were able to respond.

Some Views Showing Devastation by the Hurricane and the Blocked Conditions of the Streets.

From top to bottom: 1, Street on which aerial truck of Miami Fire Department was overturned by the hurricane. Note boats on boulevard and other obstructions. 2, Typical blocked street in Miami. 3, Royal Palm Hotel, about three blocks from bay. 4, Trees destroyed by wind and water four blocks from the ocean.

City forces and the public utilities companies began immediately after the hurricane to restore water and power service but it was 36 hours before there was a semblance of water pressure. Arrangements were made with the electric company, in event of a conflagration, to throw all power to the fire pressure pumps and cut off other services for as long as was necessary.

After the second day power, alarm, telephone and water service was gradually extended, but it was not until 16 days after the hurricane that the special patrols were entirely removed.

Fire Department Performs Many Extra Duties

In addition to its regular duties the fire department was called upon the first few days after the storm for many other services, most important of which was the use of its truck equipment to pump out basements of emergency hospitals and food establishments and also to pump fresh water into tanks for these places and isolated districts. Bakery basements were flooded and the firemen pumped these out so that equipment could be placed in operation and bread furnished the public.

Incidentally, the pressure pumps of the fire department, which were mounted on trucks, had extra hose lines attached and if worst came to worse they were prepared to open manholes and fight fire with water from storm and sanitary sewers.

Every piece of equipment in every station was kept in perfect mechanical condition, of course. The chemical engines performed major service and large additional quantities of chemicals were shipped in immediately after the storm and offered to the public. Many privately owned hand extinguishers were refilled by this method, all of which helped the general situation.

Traffic Lanes Quickly Opened Up

While the firemen were at their tasks other city forces were clearing streets to open traffic lanes and within two days most of the principal thoroughfares were passable, although to have seen the streets the first day it seemed like an impossible accomplishment in that length of time. All in all, the "come-back" of the entire city in every way was most remarkable.

Several of the fire stations were automatically turned into refugee stations after the hurricane. Women and children, principally, flocked to them from wrecked homes as to community stations and the firemen fed them and cheerfully gave up their beds.

It happened that National Fire Prevention Week fell the week after the hurricane. Miami's fire department can point to its record as a distinctive achievement in the national observance of the week.

HEROIC WORK OF FIRE DEPARTMENT DURING THE STORM

The following are excerpts from an article published in "THE EXTINGUISHER," the monthly journal of the Miami Fire Department, for October, 1926. It gives an intimate picture of some of the heroic work performed by the officers and members of the fire-fighting forces during the terrible hours when the city was in the grip of the worst hurricane that had ever visited the American east coast:

"Late in the afternoon of Friday, September 17, each fire station was notified that a cyclone was expected during the night, and preparations should be made for its arrival. What could we do? Nothing, but make such preparations as was possible and then stand by like good soldiers and let it come. The skies clouded, and by seven p. m. it was very evident that a storm out of the ordinary was on its way. The winds increased with driving rains all through the night and by two a. m., Saturday, a hurricane, far more furious than any cyclone was upon us, sweeping from a northerly course.

The Storm Breaks

"The velocity was officially reported as being between one hundred and ten and one hundred and thirty miles an hour, but it hardly seems probable that any instrument as delicate as those used by the weather bureau could register with accuracy when enormous buildings of stately structure and intrinsic value were crumbling before the slashing winds and driving rains. House tops sailed through the air and crashed to destruction all that was in their path. Telephone and electric light poles snapped like pistol cracks and trees were uprooted and thrown in with the flying masses of debris that was filling the air.

"The quarters of Engine 8 at Coconut Grove and Engine 9 at Little River were crashed to complete destruction, but both crews

(*Continued on page* 1209)

Fire Fighting With Foam Makes Headway

Most Oil Plants Equipped With Foam Apparatus—Fire Departments Rapidly Adopting It—Oil Hazards Well in Hand

By R. M. URQUHART

AS the pioneer in this new division and method of foam protection, Mr. Urquhart has rendered a distinct service to the industries and fire chiefs of the country; a service which is also a valuable contribution to the science of fire fighting and a step forward in the conservation of our natural resources as well as life and property.

Mr. Urquhart is considered one of the authorities on oil plant protection and what he says in the following paragraphs will prove interesting and valuable:

Much has been written about the various fire deterrent chemicals and gases, and in a general way their limitations as to use have been set forth. Probably this general information is best indicated by the regulations of the National Board of Fire Underwriters and the National Fire Protection Association for the installation, maintenance and use of First Aid Fire Appliances. But to date no one has attempted to describe, at least in a comprehensive manner, the wide field of application of a certain one of these extinguishing agents.

Foam Occupies Unique Position in Fire Protection

Foam, the extinguishing agent in question, occupies a unique position in the field of fire protection. This is due to its inherent smothering or blanketing, and to a certain extent, cooling properties. These characteristics so broaden the field of application as to encroach upon the domain of water. There are few fires susceptible to control by water that will not likewise yield to foam. As an instance, the ordinary roof or attic fire was formerly fought solely with a chemical line (soda and acid) backed up by a hose line. If the history of such fires in recent years was recounted, foam, it would be found, has played a prominent part. Fire departments are finding an increasing use for foam, because it makes no appreciable damage loss as in the case of water. Using it generally, in place of chemicals, and in a similar manner, it will be found effective and an efficient aid to fire department operations. It of course cannot be used on electrical fires, but neither can water or soda and acid. On the other hand foam is in its element, so to speak, when applied to oil or grease fires, while water or soda and acid, would not for a moment be considered for such fires by any well trained and informed fire department.

Difficulties in Handling Finishing Room Fires

Let us for a moment consider the modern finishing room where dipping processes involving highly flammable liquids are carried on. The fire hazard in these rooms is extreme as the nature of the compounds in the dip tanks is such that a fire in them produces serious results. Ordinary methods of extinguishment cannot often be applied with success to such a fire. Even if the room is fire resistive and contains no other combustibles, the heat from the burning compounds will ordinarily cause a severe loss to the most superior construction and even complete destruction has sometimes occurred. Such a fire will distort, with large loss, unprotected steel work and machinery in the room, as well as cause a heavy damage to the other contents. The foregoing and following statements are based on information contained in National Board and National Fire Protection Association literature on dip tank protection, so that their correctness cannot be questioned.

Foam Systems Best Protection

It is also true that dip tank fires will burn for a very long time because a sufficient amount of air cannot get to the limited surface to quickly consume the contents. A tank containing an ordinary mixture, two feet deep, would probably burn fiercely for two or three hours. The only way to extinguish such a fire is to smother it promptly. If water is applied to the tanks they are liable to overflow in which event the burning liquid will flow around the room thereby spreading the fire. Water can be used if proper means for its application are provided and supplemented by such engineering details as scuppers to convey the water and burning liquid to a safe place, but, the fact remains that an extinguishing agent having a blanketing or smothering effect, is the most effective and efficient medium for combatting such a fire. And this is borne out by what we actually find in practice—i.e.—foam systems. If a questionnaire was sent out to the large automobile and furniture manufacturers for the purpose of ascertaining the method of dip tank protection provided, the answer in a very large majority of cases would be foam systems.

Foam Protection in Dry Cleaning Industry

The dry cleaning industry has for years been educated to the use of steam, but tests of various means of extinguishing fires in dry cleaning plants, conducted at Atlantic City a few years ago, during an N. F. P. A. Convention, clearly indicated the superiority of foam for this purpose. Steam in sufficient quantity is probably of value where all doors, windows and other openings are closed, but the trouble is that the average dry cleaning plant is not provided with a boiler of sufficient horsepower to supply the necessary amount of steam. The false sense of security resulting from dependence upon steam is admirably set forth in an article on this subject published in the April 1926 quarterly of the N. F. P. A. and is proof of the foregoing statements concerning steam. Why should any man go to the expense of maintaining a boiler of capacity in excess of his normal needs in order to provide a means of protection which at best may be of questionable value, when protection of a positive nature can be secured by means of foam, and at lesser cost.

One Type of Oil Fire on Which Even Foam is Ineffective

A geyser of burning oil shot from a well under high pressure at Spindle Top Oil Field, during a recent fire which did damage amounting to $100,000.

Protection in the Manufacturing Industries

The manufacturing industries such as automobile and furniture plants, piano and bed factories, chemical plants, large paint shops in connection with railway and car shops, paint factories and establishments for the manufacture of insulating compounds all involve the storage, compounding, mixing and or application of highly inflammable paints, varnishes or lacquers. Foam is an effective and efficient medium of protection for these plants. Regardless of the required means of application, i. e., hand extinguisher, pails, portable engines or sprinkler head, foam forms the best agent of extinguishment.

Probably the largest individual division of industry in which

the value of foam is most outstanding is the petroleum industry. As a matter of fact foam stands alone as the only efficient medium for the extinguishment of oil fires. It has no competitors in that respect, and extinguishing value is of course the only feature that is of primary importance. Steam for this purpose is impracticable and carbon tetrachloride, the only other extinguishing agent of proven value for oil fires in most cases would not be considered because of its high cost. Further, by comparative tests, foam by actual performance has demonstrated its superiority over these other means of oil fire extinguishment. Let us now consider the various subdivisions of the petroleum industry starting in the producing fields.

Advantages of Foam in Producing Fields

In producing fields, water as a rule is available only from wells or streams supplemented by rain water. This is only sufficient for the demands of the boilers supplying steam to the drilling rig; certainly this limited steam supply would prove of little value in combatting an oil fire in such a location, and as a matter of fact steam here is not considered as no provisions are made by means of pipe connections or otherwise to permit its use. Water of course is of little value, except in fighting grass fires, and portable foam engines form the most effective means for combatting tank fires, such as are likely to occur here, in their incipiency. The latter word is used, as the circumstances of these tank storages preclude the installation of foam systems of size and extent sufficient to cope with other than incipient fires.

(*Continued on page* 1222)

NEW YORK FIRE DEPARTMENT BUSY ANSWERING ELECTION DAY ALARMS

Causes Movement of 1,000 Pieces of Apparatus—Firemen Hampered in Work by Ruffians Throwing Various Missiles

By WILLIAM JEROME DALY

ELECTION Day in New York City, as well as in other cosmopolitan cities too, always has been and perhaps always will be a day of activity, in the line of duty, for firemen, and the cause of this activity is the Election day spirit as expressed in terms of bon fires and mischievous pulling of false alarms.

In preparation for and in anticipation of Election Day just past, November 2, the New York Fire Department was not "caught off base" because Chief Kenlon suspended the operation of the two-platoon system from six o'clock until eleven o'clock in the evening and during most of those five hours, the engine and truck company last due on the first alarm remained in quarters to respond first due on the second alarm —but there were no second alarms.

This year, New York had 304 alarms for fires, described in reports by the New York Fire Patrol (Salvage Corps) as—"bon fires, malicious alarms, etc., causing no damage." These 304 alarms were recorded between the hours of 1.25 in the afternoon and midnight. Of this number 137 were street boxes pulled and 167 were verbal, (either in person or by telephone). Of the total number, thirty-one were maliciously false—just devilment under the guise of celebration.

The foregoing alarms involved the movement of approximately 1,000 piece of apparatus not including fireboats and special units such as water towers, boat tenders, rescue companies, chiefs of battalion and deputy chiefs of department in charge of divisions.

These alarms in addition to their reception and transmission at the rate of 27 per hour necessitated the use of a multiplicity of other signals, such as return taps, information signals to other borough central operating stations and multitudinous telephone calls from citizens, (many of whom call-in about the same fire) and the transmission of this information to the specific engine and truck companies involved in the movement.

In the language of the day, the situation had the respective fire alarm telegraph dispatchers "on their toes" all of the time. In addition, New York firemen in an effort to frustrate many of the bon fires, patrolled certain districts particularly in the tenement house areas with spare apparatus equipped with a few lengths of hose and manned by three or four men to "hit" the fires before they reached illuminating proportions, but even at that the bon fire situation in New York this year was beyond all previous records.

In addition to the hazard attendant upon many of these fires and their proximity to buildings on either side of the street, the firemen themselves in certain localities were subjected to personal abuse by ruffians throwing missiles when they saw the fires being extinguished.

Some of these hooligans dropped bottles, bricks and miscellaneous "grenades" from roof tops, windows and other points of ambush. Moreover, in some instances the firemen found the hydrants tarred at the nipple and at the spindle, thus delaying their progress in obtaining water. Frequently while engaged in separating these adhesions they were made the target for any available type of article that could be thrown.

Admitting this to be somewhat of an indictment of the fair name of New York, it is nevertheless the fact and it is the record and the writer yields to no man in his affection for and devotion to dear old New York.

The reader may ask what about the police—?

The police, while all this was going on were 100 percent engaged in the task of policing the polls, conveying the ballot boxes to the precinct station houses and doing other routine police work, such as reserve duty, leaves for meals and messenger duty in election matters, consequently the firemen were single handed save for the lone vehicle which each precinct sent out accompanied by firemen in an effort to ward off the bon fire makers, but it is a futile effort so far as results tell on each Election Night in New York.

Now, what is the remedy?

Frankly, nobody in New York seems to care a tinker's curse about a remedy. The bon fire situation seems to be part and parcel of Election Night itself. Everybody takes it good naturedly. The firemen themselves don't "kick" and the dispatchers in the fire telegraph central stations in the five boroughs who, with each alarm, are hanging on the horns of a dilemma and asking themselves—is this a real fire or one of those Election Night things, take the added burden philosophically and treat the situation in a sort of spirit of the times!

However that may all be, the cold fact remains that Election Night fires, particularly in New York, if not on Main Street in Penn Yan, Painted Post and Kankakee, are a hazard and are potential conflagration breeders, even if they have been just lucky so far.

The day will yet come, just as it did in the fireworks situation of July 4th each year, when Election Night bon fires will be considered a serious fire hazard.

Some of the Workers for the I. A. F. C. Convention

Left—William Calhoun, superintendent of the International Trade Exhibition at New Orleans who did so much to make the exhibit hall attractive without charge of any kind to the exhibitors. Right—Members of the Women's Reception Committee, Mrs. Edward Pilsubury, chairman, Mrs. Arthur J. O'Keefe and Mrs. John M. Evans, all of New Orleans.

Members of the Kansas Delegation at the I. A. F. C. Gathering

A Slow Response, A Spreading Fire

Confusion Through the Transmission of Two Alarms at the Same Time, and Delay in Reaching Fire Give Blaze Big Start

THE fire described in this article of the series on administration emphasizes, more than anything else, the necessity of having plenty of fire alarm boxes in the built up sections of the city.

In this instance two alarms were transmitted for the same fire, but as the boxes were far apart, each being approximately four blocks from the scene of the fire, and as both alarms were transmitted at the same time, the department was very much confused in answering the alarms and getting the apparatus into service. The transmission of the double alarm resulted in dividing the forces at the start and neither assignment went

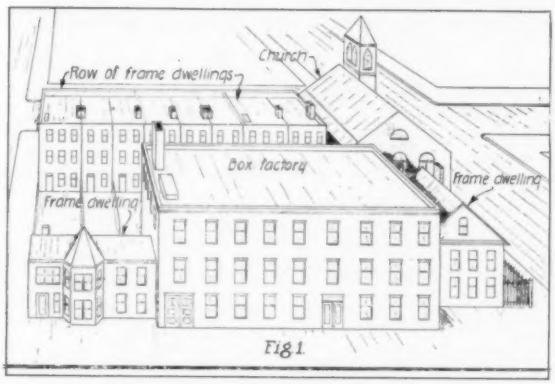


Fig. 1.

direct to the fire; considerable valuable time was lost before the apparatus got into operation.

The Fire Layout

The fire buildings, surrounding property, and ground plan are shown in Figures 1 and 2.

The building in which the fire started was a box factory of three stories height, brick construction.

The plant was in poor state of repair and the housekeeping was unusually bad. Great quantities of raw material, finished material, and shavings were present throughout the building. The electric wiring was poorly installed, and no auxiliary fire fighting appliances were at hand.

The three floors were occupied by similar operations with the exception that on the ground floor were saw mills planing mills, and a large stock of lumber.

To the rear of the plant was a row of frame dwellings and a church building, while to the right and left of the plant were private dwellings.

Across the street from the box factory was a row of two and three story brick stores with apartments on the upper floors.

Water Supply

The water supply in the neighborhood of the fire was only fair, there being but eleven hydrants within reach of the department for satisfactory operation.

At the time the fire occurred there was a fall of snow of approximately four inches in depth, and a heavy gale was blowing from the east. Roofs around the fire were fairly well covered with snow which probably hindered, to a great extent, the extension of the fire by flying embers.

The Department

The department in the city in which this fire occurred consists of 12 engine companies, 4 ladder companies, and 2 hose companies.

A first alarm from the neighborhood of the fire brings out Engine Co. No 1, 2 and 3, and Ladder Co. No. 1, equipped with a city service truck.

All engine companies are equipped with motor propelled triple combination pumpers.

A second alarm brings Engine Co. 4, 5 and 6; Hose Co. No. 1 and Ladder Co. No. 2—with an aerial truck.

Third alarm calls out Engine Co. 7, 8 and 9; and Ladder No. 3, equipped with city service truck.

A general alarm calls out in addition to the preceding apparatus, Engine Cos. 10, 11, and 12; Hose Co. No. 2 and Ladder Co. No. 4, equipped with an aerial ladder.

The Fire

The fire started between 2 and 3 a. m. and was discovered about 3 a. m. by two police officers, simultaneously.

Each one noticed the fire from a distance and transmitted alarms from different boxes located, as noted above, many blocks apart.

Each box alarm brought out 3 engine companies making a total of 6 engine companies on the first alarm, together with 2 ladder companies and 1 hose company.

Before the apparatus actually reached the fire and got into operation fire had gained great headway in the box factory. This is shown by the fact that 20 minutes after the alarm was sounded fire was coming out of all windows of the box factory making it impossible for the department to operate at close range.

Lines were assigned as follows: Engine Co. No. 1, a single line to the front of the building.

Engine Co. No. 2 a single line to the front of the building.

Engine Co. No. 3 a single line to rear of the building.

Engine Co. No. 4 a single line to rear of the building.

Engine Co. No. 5 a single line to the front of the building.

Engine Co. No. 6 a single line to the front of the building.

This layout was maintained until the fire had gained such headway that the two lines operating at the rear were forced to withdraw due to the heat.

Shortly after withdrawing they took positions at the front of the building but a sudden collapse of the front wall drove back all lines, putting 3 of them out of commission.

The chief of the department had arrived at this time and assumed command.

Noting that the frame houses to the rear of the factory were already ablaze, and that the steeple on the church was afire, he transmitted a general alarm bringing out the 6 remaining engine companies, 2 ladder companies and 1 hose company.

Before the arrival of this apparatus fire spread across the street facing the front of the building and entered the row of 2 and 3 story buildings opposite.

At the same time it continued to spread to the rear and involved the frame buildings immediately at the rear as well as the church.

Upon the arrival of the 6 engine companies on the general alarm, single lines were stretched from each, 4 of them being operated at the rear of the factory to cover the exposures across the street bordering on the private houses and church building.

These 4 lines were able to prevent the fire from jumping this street.

As soon as additional lines had been put in operation to take

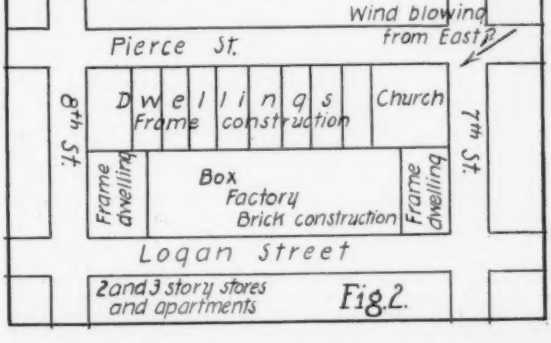


Fig. 2.

the place of those put out of commission by the collapse of the front wall, there were in operation at the front of the building covering the exposure across the street, 6 lines, from the first two alarm assignments, as well as 3 from the last alarm.

When it was found that the box factory was beyond saving all attention was directed to the row of stores across the street, and the buildings to the right and left of the box factory.

By quick work in surrounding this block and working from

the rear, the row of stores facing the box factory were only partially involved.

The box factory was completely destroyed as well as the frame buildings to the rear and the church as well.

Fire was stopped as shown by the heavy line in the sketch of the fire area.

The editor's ideas on the handling of this fire will be given in the next issue of this journal.

Model Fire Ordinance at Springfield

The fire prevention committee of Springfield, Ill., have been very active the past few years in an attempt to establish a praiseworthy fire prevention record for the city. The local chamber of commerce and the various fire insurance organizations have assisted in bettering the conditions.

A very effective measure that the city has adopted in this work is photographing the existing hazard and making the print a part of the records of the department. A novel scheme is the following ordinance which has passed the legislative body and is now a law.

AN ORDINANCE IN RELATION TO FIRE PREVENTION.

Be It Ordained by the City Council of the City of Springfield, Illinois:

SECTION I. Division of Fire Prevention Created. That there be and there is hereby created in the Fire Department, under the Department of Public Health and Safety, a division to be known as the Division of Fire Prevention which shall consist of the Fire Marshal Ex-officio, a Captain of the Fire Department to the designated by the Chief of the Fire Department subject to the approval of the Commissioner of Public Health and Safety and to be known as the Captain in charge of the Division of Fire Prevention and such other members of the Fire Department as shall be detailed as Assistants from day to day to make inspections and serve in this Division. The firemen so named shall act under the direction of the Captain in charge of the Division of Fire Prevention and under the general authority of the Commissioner of Public Health and Safety.

SECTION II. Duties. It shall be the duty of the Captain in charge of the Division of Fire Prevention to make monthly reports to the Fire Marshal of all inspections made by himself and the Assistants operating under his direction to make the inspection herein provided for, to make, and prosecute complaints for the violation of this and other ordinances of the City in relation to fire safety and prevention, to serve any and all notices herein provided for and to do and perform any and all other acts necessary and proper to carry out and enforce the provisions hereof.

It shall be the duty of the Fire Marshal to prosecute all persons who shall fail, neglect or refuse to comply with the provisions of this ordinance.

SECTION III. Inspections. The Captain in charge of the Division of Fire Prevention and his assistants are hereby empowered and authorized at any and all reasonable times to enter upon and into any premises, building or structure within the corporate limits of the City of Springfield for the purpose of examining and inspecting the same to ascertain the condition thereof with regard to the presence of, arrangement or deposit of any article, waste, debris, rubbish, material, substance, goods, wares, merchandise or any inflammable or combustible material which has or may have a tendency to create danger of or from fire, or to catch on fire in or about said premises, building or structure, or to create damage in case of fire on or in the same, or to cause personal injury to or loss of life of the occupants of or in said premises, building or structure; also to make such inspections with regard to the condition, size, management and efficiency of all appliances for protection against fire on or in such premises, building or structure.

SECTION IV. Dangerous Condition Prohibited. It is hereby made unlawful for any person to place, maintain, store or handle or to permit the placing, maintaining, storing or handling of any goods, wares, merchandise, article, rubbish, paper, waste, or other material in any residence, room, building, premises or structure, unless the same be placed, maintained, stored or handled in such manner as to afford all reasonable safeguards against danger from fire, or to place, maintain, store or handle any such goods, wares, merchandise, article, rubbish, debris, waste or other material in any such residence building, premises or structure in such manner as to block, cut-off, enclose or interfere in any manner with any opening or place of egress from any such residence, room, building, premises reasonably required as a means of escape therefrom in case of fire.

And it shall likewise be unlawful to maintain any building, structure or premises, which for want of repairs, lack of or insufficient fire escapes, automatic or other fire alarm apparatus or fire extinguishing equipment, or by reason of age or dilapidated condition, faulty or defective electric wiring, equipment or devices or for any other cause is especially liable to fire or the rapid spread thereof, or to maintain any such premises which is so situated and in such condition as to endanger other property or the occupants thereof and whenever the Captain in charge of the Division of Fire Prevention or his Assistants shall find in any building or an any premises combustible or explosive matter or inflammable conditions dangerous to the safety of such building or the occupants thereof, he or they shall order such dangerous conditions or materials to be removed or remedied and such order shall forthwith be complied with by the owner or occupant of such premises or buildings.

In cases not specifically covered in this ordinance the recommendations, rules and regulations of the National Board of Fire Underwriters governing such cases shall be considered as authoritative and be held to govern.

Any person, firm or corporation, who shall violate the provisions of this Section shall be subject to a penalty or not less than Ten Dollars nor more than Fifty Dollars.

SECTION V. Failure to Remedy Dangerous Condition After Notice; Penalty. In case the Captain in charge of the Division of Fire Prevention or any of his assistants shall discover that any residence, room, building, premises or structure is being used, kept or maintained by any person, contrary to the provisions of this and any other ordinances of the City in relation to fire safety and prevention, it shall be the duty of such Fire Prevention Inspector to forthwith serve upon such person, a written notice commanding him to at once remedy and remove the condition or obstruction complained of. And in case such person shall neglect, fail or refuse to remove or remedy such condition or obstruction for a period of three days thereafter, the said person, so offending shall be subject to a fine of not less than Ten Dollars nor more than One Hundred Dollars, and to a further penalty of not less than Five Dollars nor more than Ten Dollars for each and every day, during which such person shall permit such illegal condition or obstruction to continue.

It shall be the duty of the Fire Marshal to prosecute such persons as shall fail, neglect or refuse to comply with said written notice.

SECTION VI. Civil Liability; Records To Be Kept. The Captain in charge of the Division of Fire Prevention shall keep a record of all inspections made by him and his assistants and also of all notices served by him under the provisions hereof, in order that the person offending may be effectively prosecuted, and also in order to fix the civil liability of any such offender for any and all damages occasioned by his negligence in the use, erection or maintenance of any buildings, structure or premises or part thereof under his control.

SECTION VII. Construction. In the construction and interpretation of this ordinance, words importing the singular may include the plural, words importing the masculine gender may be applied to females, and the word "person" or "persons" may extend to and be applied to partnerships and corporations.

SECTION VIII. This ordinance being deemed a matter of public urgency, shall be in full force and effect from and after its passage, approval and recording, and ten days after the publication thereof.

Passed Sept. 14th, 1926.
Recorded Sept. 14th, 1926.
Signed Sept. 14th, 1926.

J. EMIL SMITH,
Acting Mayor.

M. M. SMITH,
City Clerk.

Eureka Has Unique Exhibit

At the New Orleans Convention of the International Association of Fire Chiefs of the Eureka Fire Hose Company of 50 Church Street, New York, had a very unique exhibit. The exhibit was enclosed by a fence, the railings of which were made up of Eureka Hose. This was accomplished by slipping the hose over wooden bars of proper diameter.

The exhibit itself was one of the most attractive of the display and received much commendation. The company was represented at the convention by the following: Herman Wise, George Hand, L. M. Gasney, John Smith, Frank R. Grady, Superintendent; Joseph H. Green, Vice President; R. W. Joyner, Manager Dallas; Fred. E. Bensen, Manager New York Office; H. H. Lussen, M. Murphy, P. O. Hebert, Manager Southern Office; W. L. Knight, R. S. Timmerman, A. H. Timmerman, Theodore O. Stewart, J. L. Plummer, H. H. Barnard, J. R. Hansley, J. C. Dorn, J. S. Proctor, G. Wallace Bailey and A. G. Taylor.

It is believed that this company had the largest number of representatives on hand of any of the exihibitors

An Enthusiastic Group at the I. A. F. C. Convention

New Rules of the New York Fire Department

This Second Installment Covers Duties of Chiefs of Battalion, Officers of Division of Apparatus, Medical Officers and Company Commanders

FOLLOWING is the second installment of the "Rules and Regulations of the Uniformed Force of the Fire Department of the City of New York," just issued by that department, and which are to be published serially in their entirety in FIRE ENGINEERING. *This book has been compiled and edited by Captain John J. McCarthy, of H. & L. No. 43, detailed in charge of the Division of Public Assembly at Fire Headquarters, who worked under the personal supervision of Chief John Kenlon. This installment includes sections covering the duties of Chiefs of Battalions, Officers of Divisions of Apparatus, Medical Officers and Company Commanders.*

SEC. 39. They shall make inspections of their respective battalion districts frequently; become familiar with the construction and occupancy of buildings, and forward reports when conditions require.

They shall visit motion picture theatres at irregular intervals and report violations found, and shall make inspections of department stores prior to Christmas, with a view to minimizing hazards.

SEC. 40. They shall forward required reports, following out the forms provided for that purpose.

Division of Apparatus

SEC. 41. The officer in charge of the Division of Apparatus, subject at all times to the Chief of Department, shall have general supervision of the Division and its employees, and make such rules regulating the operation of the Division as may, from time to time, be found necessary; not in conflict, however, with any rule, regulation or order of the Fire Commissioner.

SEC. 42. He shall keep records of supplies received and delivered, as well as an account of the labor and materials expended on each piece of work done under his direction.

SEC. 43. He shall report frequently to the Chief of Department concerning the necessity for new apparatus, tools and equipment. He shall also report apparatus unfit for further service by reason of being worn out in use, or damaged in service, with his recommendations for disposition.

SEC. 44. He shall have charge of the Repair Shop and shall be responsible for its management.

SEC. 45. Whenever, in his opinion, a piece of apparatus is, for any reason, unsuited for service until it shall have undergone repairs, it shall be his duty, with the knowledge of the Chief of Department, to order it out of service, provide for its replacement with spare apparatus of the type, size and kind removed, and cause its removal to the Repair Shop.

SEC. 46. All new apparatus received shall be thoroughly tested under his supervision. All apparatus repaired shall also be made the subject of a thorough test before being placed in service. Tests of boilers, pumps, and connections of pumping engines, shall be made under the supervision of the Supervising Engineer.

Medical Officers

SEC. 47. The Chief Medical Officer shall be in charge of Medical Officers and shall keep a record of all examinations and recommendations made by them.

SEC. 48. The Chief Medical Officer shall forward to the Chief of Department each day a complete list of all members of the uniformed force on sick leave. This list shall embrace the full name and rank of each member, nature of illness, and whether or not the illness was caused by or resulted from fire duty.

He shall direct the Medical Officers to forward, through him, to the office of the Chief of Department, on Tuesday of each week, a report on printed forms showing their activities in connection with the following:

(a) Dates and time of visits to members on sick leave, whether in hospitals or at residences, giving nature of illness.
(b) Services rendered by them in connection with fire duty, giving name of member, signal station, date and time, location of premises, and nature of injuries.
(c) Sanitary inspections made of company quarters.
(d) Clinical duty and board meetings attended.
(e) Home office duty.
(f) Visits to members at company quarters.

The Chief Medical Officer shall report failure on the part of any Medical Officer to comply with the provisions of this section.

SEC. 49. All applicants for appointment to the uniformed force shall be examined by two or more Medical Officers. If either or any shall dissent from the judgment of the others he shall note his objections upon the certificate of examination, which shall then be forwarded, through regular channels, to the Commissioner.

All persons employed provisionally shall be re-examined by one or more Medical Officers before their final appointment. In case of the rejection of an applicant, the re-examination must be made by three Medical Officers, and at the re-examination the applicant, in the presence ot the Medical Officers, shall sign his name upon the certificate.

Loss of weight below the standard fixed, when superinduced by the training during probation, shall not disqualify, unless the examination shows the loss to be due to physical imperfections not previously apparent or which have been developed by the training.

SEC. 50. Medical Offices in Manhattan and Brooklyn shall be open from 9 a. m. to 5 p. m., and one or more Medical Officers shall be in attendance from 10 a. m. to 1 p. m. Treatment of members of the Department shall be without charge when ordered through regular channels. Members on sick leave shall be treated at the Medical Offices if able to report there.

SEC. 51. Medical Officers shall examine the sanitary condition of Department buildings and first-aid bags in their respective districts at least once in every quarter, and make a report thereon to the Chief Medical Officer, who shall promptly forward it to the Chief of Department.

SEC. 52. They, and Honorary Medical Officers, shall have authority to grant sick leaves, not to exceed twenty-four hours. The Chief Medical Officer shall be notified of such action before the expiration of that period, in order that he may grant extensions of such leaves, if, in his judgment, such are necessary.

SEC. 53. Medical Officers shall report any violation of their orders by members.

SEC. 54. They shall make special reports of feigned illness, intemperance, debauch, and bad or unlawful conduct.

SEC. 55. They shall respond to all third and greater alarms for fire in their respective districts, report to the officer in command for orders, and remain until relieved from duty by him.

Company Commanders

SEC. 56. Captains shall have command of the discipline, efficiency and operation of companies, and shall be held responsible for the upkeep and protection of all Department property in or assigned to their respective units.

SEC. 57. They shall have charge of company quarters; be responsible for its cleanliness, fuel, heating apparatus, oil supply tanks and appurtenances, and shall exercise rigid economy in the use of supplies.

The sidewalk, gutter and street in front of quarters shall be maintained free from snow, ice and other encumbrances.

No changes or alterations in Department buildings or appliances will be permitted except with the permission of the Fire Commissioner.

When buildings are being erected adjoining or adjacent to quarters, a report shall be forwarded stating whether the provisions of Section 392, Article 19, Chapter 5, of the Code of Ordinances are being complied with.

SEC. 58. They shall assign members to the work incidental to the cleaning and maintenance of quarters and apparatus.

The platoon on duty during the period between morning and evening roll calls shall clean quarters and apparatus. The platoon on duty at night shall clean apparatus and tools after each run, and shall keep the apparatus floor, sidewalk and street in front of quarters in a clean condition.

They shall also designate a member, other than the house watchman, to attend to all heating appliances between 7:30 a. m. and 8:30 p. m. each day, except where such duty is otherwise provided for by these rules.

SEC. 59. They shall see that quarters are used only for Department business. Visitors shall not be allowed to enter after 9 p. m., nor shall social assemblages be permitted at any time.

SEC. 60. They shall not allow privately owned automobiles to be brought into quarters, except with the written permission of the Chief of Department.

SEC. 61. They shall see that the dormitory is kept neat, clean

and well aired, weather permitting; that bed clothes are changed and thoroughly aired at the time each group changes from night to day duty, except when the platoon system is suspended. For these duties a matron shall be employed, to be paid monthly by members according to the following schedule:

Captains	$3.30
Lieutenants	3.10
Engineers and Pilots	2.90
Firemen, 1st and 2nd Grades	2.70
Firemen, 3rd and 4th Grades and Ununiformed	2.50

When a vacancy for Matron occurs, the Office of the Chief of Department shall be notified.

Members on a continuous sick leave of absence for a period exceeding three months, and members detailed, shall be exempt from the payment of house assessments.

SEC. 62. They shall keep an accurate record of all gasoline, oil and supplies received and expended; personally supervise the filling of house supply tanks, and promptly forward copies of receipts to the Bureau of Repairs and Supplies through regular channels.

SEC. 63. They shall hold chauffeurs responsible for all gasoline drawn from supply tanks, and shall require entries to be made in Company Journal for all gasoline and oil received at quarters and at fires. Entry shall also be made when tanks of apparatus are filled in quarters.

SEC. 64. They shall see that dogs housed in quarters are muzzled, in accordance with law.

SEC. 65. They shall, promptly at 9:00 A. M. every day, and 6:00 P. M. on days when platoons are scheduled to change, require all members of their commands to report at the house watchman's desk in the uniform prescribed to be worn at roll call and to have with them all Department property entrusted to their care.

After the receipt of the 9 A. M. and 6 P. M. test signals, they shall form companies in two platoons, call the roll, read all General and Special Orders, Circulars and Departmental communications received since the 9 A. M. roll call on the previous day; post the bulletin of assignments to house watch duty; deliver oral information or instructions deemed necessary; make an inspection of all members as to personal appearance, and of all Department property in their care. They shall then cause the platoons to salute, recover and break ranks.

Absence of a company from quarters and fatigue from night duty during periods when the platoon system is temporarily suspended, will automatically obviate compliance with this rule. Failure to comply with it under normal conditions of service shall be made a subject for charges.

Roll Call, from June 1st to September 1st, shall be held at 8 A. M. and 6 P. M.

SEC. 66. When an off platoon reports at quarters for duty and finds that the working platoon is out, the officer in charge, or, when no officer is due, the senior member of such platoon, shall, after calling the roll, proceed to the point of duty with his platoon and report to the officer in command without delay.

SEC. 67. The officers on duty following roll calls shall, with chauffeurs, make a thorough inspection of all parts of apparatus in quarters. When completed, the officer in command shall enter in the Company Journal, over his signature, all details of the roll call and of the inspection.

SEC. 68. They shall, at 9:30 A. M. each day, direct all members on duty to report on the apparatus floor and direct the performance of the exercises prescribed in the Calisthenic Manual.

SEC. 69. They shall prepare and forward the morning report, and all other necessary papers, immediately after roll call each morning. When sending official communications they shall endorse on the first fold the company number, date, name of writer, rank, and purport of contents. All other endorsements shall be on the second and subsequent folds.

SEC. 70. They shall see that there are recorded in the Company Journals the events of the day and all matters affecting the administration of companies and their personnel.

SEC. 71. They shall not allow apparatus to be taken from quarters except:

(a) Upon receipt of an alarm for fire.
(b) Upon order of the Chief of Department, the officer in charge of the Division of Apparatus, or of the Supervising Engineer.
(c) For the purpose of cleaning quarters, training chauffeurs, or for drilling.

On such occasions they shall make an entry in the Company Journal, stating the exact time apparatus left, the purpose, and the exact time of return.

Company commanders shall supervise drills.

SEC. 72. They shall ride with or as near as possible to chauffeurs and direct them.

SEC. 73. They shall hold members assigned to drive responsible for the proper protection, cleanliness, condition and care of the motor, transmission equipment and running gear of apparatus at fires and in quarters. Where blame may be imputed for accidents or improper care, charges shall be preferred.

SEC. 74. They shall report every case of injury or sickness, no matter how trivial, to the Medical Officer of the district.

Where immediate hospital attention is necessary, in the event of an accident, they shall order the patient to the hospital and communicate all facts at once to the Medical Officer of the district, in addition to forwarding the required reports. Paragraph II, S. O. 233, 1918, and Circular 7, 1922 shall be noted, in such cases.

SEC. 75. They shall familiarize themselves with every building, place or premises in their districts and keep a department record describing them. It is expected that company officers will devote four hours of one off tour period each week to the inspection of buildings. A written report of such inspections, giving all details, shall be forwarded on the third of each month.

SEC. 76. They shall cause daily inspections to be made of buildings in their districts (Sundays and holidays excepted) and forward reports on forms provided, at the time required. Orders relating to the inspection of buildings shall be rigidly adhered to.

(To be continued)

A Boston Foamite Test

A highly successful demonstration of the extinguishing powers of Foamite was held recently in a vacant lot off Massachusetts Avenue in the south end section of Boston, Mass. The test was especially arranged by the officials of the Foamite-Childs Corporation for the benefit of Fire Commissioner Eugene C. Hultman, of Boston.

Upper, Crowd at Recent Foamite Test in Boston. Lower, the Fire Just Before the Foamite was Applied.

A pit filled with fuel oil and gasoline was ignited and after the flames had obtained full headway the blaze was quickly put out with a stream of Foamite from a hose line to which was connected one of the Foamite-Amdyco continuous foam generators.

A wooden shanty soaked with gasoline and containing shelves with paint cans was ignited and extinguished in similar manner. Other tests included those of an automatic foam extinguisher suitable for dip tanks and of portable foam extinguishers as well as carbon tetrachloride and the ordinary soda and acid extinguishers.

There was a large crowd of interested spectators present at the time of the demonstrations. Among those attending the demonstrations were Fire Commissioner Hultman, Chief Daniel F. Sennott, Assistant Chief Henry Fox and Deputy Chief Albert J. Caulfield, of the Boston Fire Department; Chief Fred Tenney, of Braintree, Mass.; Chief John W. O'Hearn, of Watertown, Mass.; and officials of the Boston Navy Yard.

HARRY BELKNAP.

Modern Fire Alarm Signalling

Master Clocks and Time Switches—Description —Some of the Common Troubles and Remedies

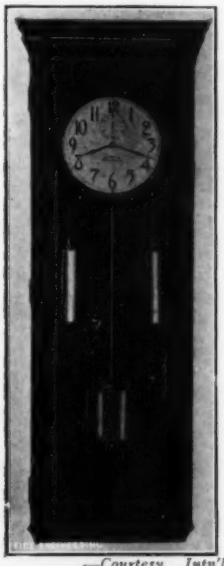
By E. W. KEIRSTEAD, E. E.

THIS is the fourteenth of a series of articles on the care, installation and repair of various phases of fire alarm work. The author has had practical experience in this field, and he will answer questions on this subject that are submitted to him by the readers, free of charge. The only condition is that a stamped envelope must be enclosed for reply.

Description

The self winding type of master clock is the unit most frequently used for central office master clocks and it must be an accurate substantially built, self winding unit that is entirely automatic in its operation and also independent of batteries and varying local conditions.

The International type D master clock is an ideal type of master clock to use in connection with the operation of time stamps, lights and time controlled switches. This type of clock keeps itself wound from the electric lighting service by means of a standard universal motor that works from either alternating or direct current. To insure uniform driving power at all times, the movement is of the weight driven type. The clock will run for several days with the power shut off and automatically winds itself with the restoring of the power.



—Courtesy, Intn'l Time Recording Co.

Fig. 37—Self Winding, Weight Driven Master Clock.

The movement is very substantially built of tool steel and hard brass. Pinions and gears are specially cut and burnished. The pivots are hardened and lapped to size; all bearings are wide and carefully polished; the main bearings are all of the ball bearing type and are packed in oil. The escapement is of the Graham dead beat type and it is fitted with a screw adjustment for putting the clock in beat.

Figure No. 37 shows a Type D central office master clock and also serves to show the construction of the case and housing of the weights and pendulum. In figure No. 38 the mechanism of the clock is shown. Note the heavy construction folowed out in the assembly of the movement and winding arrangement, also the heavy castings used for mounting the mechanism and suspending the pendulum. This type of construction insures a perfect and permanent alignment of all parts.

The minute interval contact used on this movement is of unusually heavy construction. It is of the finger and cam type, the fingers themselves do not carry the current, they simply operate to close a pair of contactors that are made of a special non-corrosive metal of such low electrical resistivity as to insure practically dead closing of the electrical circuit when the contact fingers come into position. The contact fingers are eccentrically pivoted to provide for a contact duration adjustable from a fraction of a second to several second's duration. The operating cam is of a hard metal and is carried on its own shaft independent of the clock train and therefore does not interfere in any way with the time keeping qualities of the clock.

The case for the clock measures approximately 65 x 24 x 10 inches. It is regularly finished in golden oak but can be made up in the finish desired to match other apparatus in the office. The dial is 12" in diameter, etched and silvered on brass. The pendulum beats seconds and is of the 15 pound mercurial compensating type. With this type pendulum the clock is guaranteed to rate within 10 seconds per month of correct time, when hung in a place free from vibration and regulated in position.

All electrical connections are located at the top of the clock where they are easily accessible from the outside. A special cover is provided for the opening in the top of the case to protect the movement from dust and dirt.

All electrical equipment in the clock is constructed and installed according to the National Board of Fire Underwriters rules.

Operation of Master Clocks.

The clock in operation moves a gear which is attached to a shaft having a metal cam on it. The gear moving around clockwise, in turn, rotates the shaft causing the cam to move around, at the minute interval the came raises the contact arm which in turn raises the contact fingers allowing the contact to be made in the local circuit. An impulse is sent over the local or secondary circuit allowing the time stamp minute relay to operate and cause all the time stamps to receive one impulse advancing them one minute ahead.

When the driving weights have reached a certain limit of travel contact is made in the motor winding circuit and the weights are automatically wound up, the contact breaking before the weights are brought up full allowing the clock to be wound up.

If it is desired to operate special signals over the master clock system a special device will have to be used which will be described a little farther on in this article. In figure No. 38 the movement of the clock is shown and the operation can be easily followed out from this.

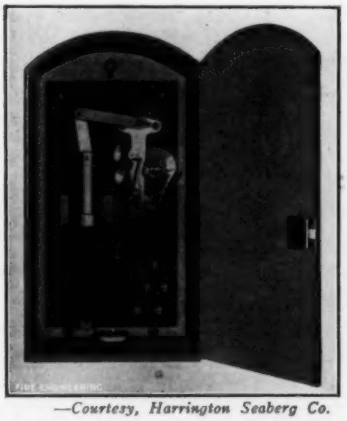
Installation of Master Clocks

Hang the master clock in a place as free from dust, dirt and vibration as is possible. Do not place it in a place higher than convenient to reach with an ordinary step ladder. Hang the pendulum on the suspension spring in the back of the movement and drop the verge wire in the slot provided in the pendulum road. See that the back of the case is plum so that the pendulum can swing freely then move the bottom of the case sideways until lower end of the pendulum hangs in the center of the pendulum scale. Fasten the clock securely with the screws provided and make sure it is still plumb. If it is not square it will have to be set out square with shims. Connect up the clock wires as shown with the blue-print furnished with the clock. Next operate the winding magnet and allow the clock to wind up full. Set the clock to the proper time by turning the hands forward and swing the pendulum forward. It will be necessary to allow the clock to run for a few hours before trying to regulate it.

Care of Master Clocks

1. **Regulation.** To regulate the clock, if clock runs fast, screw the thumb nut at the bottom of the pendulum ball down (to the left). If the clock runs slow screw the nut up (to the right).

2. **Removal of the dial.** To remove the clock dial unscrew the thumb nut holding the minute hand and remove the same. Hold the pendulum in the extreme position of either swing and with a slight turning and pulling motion, remove the hour and second hands. Unscrew the four screws holding the dial and it is now ready to be taken off.



—Courtesy, Harrington Seaberg Co.

Fig. 40—Time Switch for Sirens.

3. **Setting of the Clock.** Hands may be set by moving them manually in clockwise direction. Hold pendulum in either travel of the pendulum and never turn the hands backward.

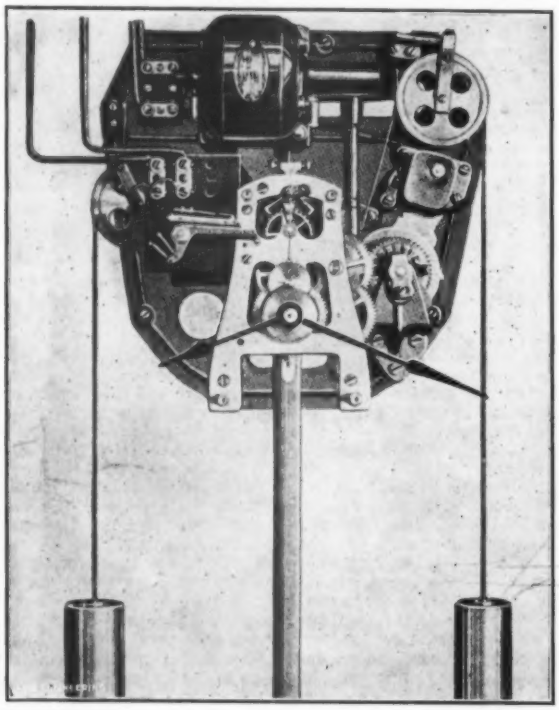
4. **Contact Adjustment.** Contacts on a master clock should be adjusted for one half second duration on a 120 beat clock and for one second on a 60 beat clock the duration of the con-

tact should last one beat. To make this adjustment proceed as follows:

Remove the clock dial as described in section 2.

Bring the pendulum to its extreme position of the right swing. With the cam set screw loose, turn the impulse cam clockwise until the front contact finger drops off the cam. Tighten the set screw at this point.

Next swing the pendulum 59 times to the right and left and on the 59th swing to the left hold it and adjust the rear contact spring so that it just drops off the high point of the impulse cam. To do this loosen the lock nut for the fingers with a small screw driver and turn the hexagonal eccentric bushing which is located between the contact fingers. This will move the tip of the rear contact finger forward or backward with respect to the high point of the impulse cam. Turn this eccentric



—Courtesy, International Time Recording Co.

Fig. 38.—Mechanism of Clock.

bushing cautiously until the rear contact finger just drops off the cam and then tighten the locknut.

Now check the contact duration by swinging the pendulum until the rear contact finger drops off the impulse cam. On the next swing in the opposite direction, the front contact finger should drop off the cam, thus giving the required second contact duration.

In dropping off the impulse cam the contact fingers should rest on the stop arm which can be adjusted by means of the screw located in the bakelite block. The height of the stop pin should be adjusted so that the contact fingers ride on the cam for three quarters of a minute. When the contact fingers rest on the stop arm there should be a distance of 1/32″ to 1/16″ between contact points.

NOTE: The above adjustment of contact duration should be made when clock is wound. Special clock oil should be used in oiling these clocks and machine oil should never be used.

The clock should be kept clean at all times and occasionally it should be oiled. In large Fire Alarm Offices it is sometimes necessary to install a light directly over the clock and when this is done the clock should be stopped while all pounding and driving is being done to allow the clock to keep correct time. The clock can be set again and started after all vibration has stopped.

Troubles Incurred with Master Clocks

There is hardly ever anything wrong with the movement of the clock itself and most of the reported troubles with master clocks are of a secondary nature such as local circuits, winding motor circuit, etc. To enable one to diagnose the troubles on clocks, a list of the troubles are outlined.

Clock stopped

Winding circuit fuse blown—replace with new fuse.
Winding motor circuit dead—power off. Learn cause.
Motor shorted—Take out motor and have it repaired by competent workman.
Winding motor magnet shorted—Test and replace magnets.

Clock runs and keeps time but local apparatus fails to operate

Minute cam contacts dirty—clean contacts to correct.
Local fuses open—Replace fuses with new ones.
Weak battery—test battery and correct.
Master relay inoperative—test relay and correct.

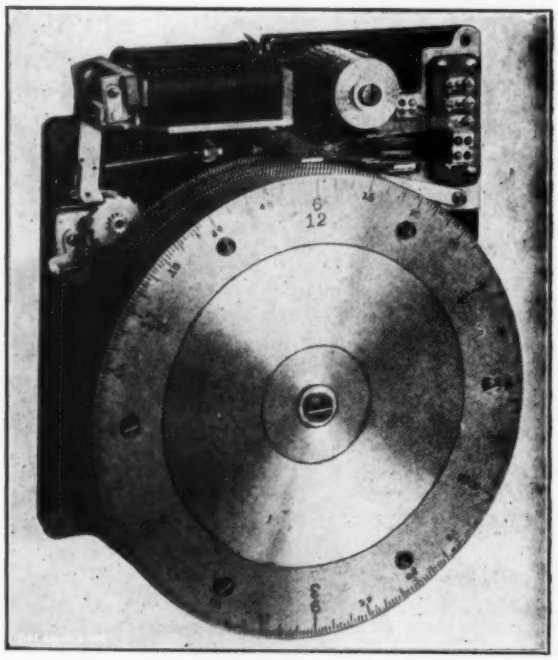
Clock will not keep current time

Not regulated correctly—regulate as described above.
Clock out of plum—test and square up case.
Gummy oil in movement—clean out movement.

These troubles occur very rarely and a good master clock will not require a great deal of attention except an occasional oiling and wiping off with a clean dry rag.

Special Signals from Master Clocks

Where it is desired to transmit time blows from the central office to any number of engine houses at given periods, or calling watches, etc., a very satisfactory mechanism for striking blows from master clocks is what is known as a program control. This unit makes it possible by means of a master relay, to send out blows over circuits at any predetermined time. Where it is not desired to send out the blows automatically this machine will give a warning signal at the time desired to



—Courtesy, International Time Recording Co.

Fig. 39—Program Control.

transmit signals, etc., allowing the operators to busy themselves with other work.

The unit consists of a set of disks with a slot out for each minute of time and a separate disk is used for each six hours of time allowing any number of signals to be set up for a 24 hour period. In figure No. 39 a program control is shown and some idea can be obtained of its workings.

The machine consists essentially of a series of brass disks about ten inches in diameter by one sixteenth of an inch thick, with radial slots out all the way around its diameter at minute interval spaces. The schedules are made up by inserting brass pins in the slots wherever signals are desired. It is a very simple matter to set up a signal on this device and when the pins are once installed they will not drop out.

The electrical current is not carried or grounded on the machine. It is handled entirely by a set of contactors actuated by the clips which are inserted in the slots. These contacts

(*Continued on page* 1214)

WITH THE EDITOR

What Is To Be Done?

On the past election day in New York City 304 alarms were received for bon fires and fires started by boys and others in the spirit of celebration. In answering these alarms over 1,000 pieces of apparatus rolled. Although none of the fires developed to serious proportions, it was only because that weather conditions were favorable and because the department was on its toes all the time.

The experience of other cities is on a par with that of New York.

What is to be done to remedy this condition?

Will it be tolerated until some catastrophe results to stir up public opinion against the practice? Fourth of July fires, which were at one time a great hazard, have been effectively controlled, and there is no reason why election fires cannot be treated accordingly.

It will, however, require the coordinated efforts of all bodies interested in fire protection to efficiently handle this problem. The making of laws will not remedy the trouble, for the successful candidates in a spirit of charity, engendered through the good feeling incidental to their success, will not force prosecution of those whom they feel were pleased at the political success and who endeavored to celebrate in a "misguided" manner.

Here's a subject which the International Association of Fire Chiefs, in their big program for the coming year, can take up and for which they may devise methods of proper treatment.

Inflammable Decorations Barred at Christmas

An important warning has been issued by the National Board of Fire Underwriters, through its superintendent of the bureau of surveys, William B. White, in connection with the use or display of inflammable decorations during the Christmas holidays.

According to Mr. White, the standard form of insurance policy, applied equally to stores, churches, places of public assembly, clubs and private homes, absolutely prohibits the use of Christmas greens, cotton, tissue paper, or any other form of inflammable material as decorations, as such use will nullify the insurance, in case of fire.

This provision in the insurance policy should be a great advantage from the fire prevention standpoint. Most "Christmas fires" originate in some form of flimsy decoration, which takes fire through an act of carelessness, and which, by the very nature of its composition, makes a particularly quick and hot blaze.

If the insured is made to realize thoroughly that by the act of installing such inflammable decorations he is not only endangering the lives of his family, his employees, or of others, as the case may be, but also is liable to lose all through his carelessness, without any reimbursement through insurance, he will cease to take unnecessary chances, and resort to more sane and equally beautiful forms of decoration, that will not burn.

The knowledge of the facts as emphasized by the National Board should be widely circulated by the chief and the members of the fire department between now and Christmas—the sooner the better—so that storekeepers, householders, club stewards, and all who have charge of such decorations, will have no excuse to plead ignorance, and will be persuaded to employ only fire resistant material in decorating their homes, stores, etc.

This can be accomplished through personal touch—which is the best and most direct method—through the medium of the daily press, the moving picture screen, the store window, and by means of the public school children.

The public school forms an excellent means for inaugurating this kind of a safety campaign, as the scholars will be interested in such a novel idea as non-burnable decorations, and will carry it back to parents in the most direct way.

Another way to quickly spread the doctrine of non-inflammable decorations would be by means of the Rotary, Kiwanis, and other civic bodies, the chamber of commerce, and any social organization willing to further the good work—and few will not be.

Any work of this nature done by the chief and his men will yield interest at several hundred per cent, in the increase of carefulness and the doing away with the serious menace of inflammable decorations at Christmastide.

Now For An Eight Hour Day

The International Association of Fire Fighters at their Annual Convention in Philadelphia last month adopted a resolution, introduced by the New York City delegation, which is intended to eventually bring into force an eight hour day for firemen.

There will be many arguments for and against the three platoon system but the chief opposition will come from those who have the responsibility of the financial end of city administration.

The question of expense will be the only logical argument against the three platoon. Lack of funds will necessitate keeping of the personnel down and the division of the force into three parts instead of two will make fewer men on each shift. Such a condition will have its serious aspect. With the adoption of the two

platoon few fire departments increased the force sufficiently to maintain the same number of men on hand at all times in the stations as were available with the single platoon.

With the advent of a three platoon system the same problem will again arise but in a more aggravated form.

There will not be a fire chief in the country who will oppose the principle of the three platoon system, but there will be a great number who must, in view of their responsibility for the safety of the city, strenuously oppose the adoption of the three platoon if it means cutting down the number of men available at any time in quarters.

Arguments for the three platoon will be sound. While practically every other trade in the country limits the hours of work to eight or less per day, the fire field has adhered to the old custom of making the men work anywhere up to twenty-four hours a day. There will be more opposition than in the case of putting over the two platoon, and this point must be continually borne in mind. Finally, the fact that police departments operate on the three platoon and have done so for years is sufficient justification for fire departments striving for the same conditions.

Look Out For These! Just as there are prohibited beverage bootleggers, so are there also film bootleggers. From one standpoint, at least, the latter is the more dangerous. By his practices he may cause not only the loss of life but great loss of property as well.

And here is how he operates: He secures obsolete motion picture films, of the highly inflammable type, or else films which have been put out by any of the numerous companies which have made a stab at the motion picture business and then dropped it. Occasionally, he even secures reels of films through theft.

These films, no matter what the source, are usually handled in the same way. They are cut up into small sections and sold for use in various ways, including home projection on the toy motion picture machine; and just here is where the danger lies.

Placing such materials in the hands of children is about as dangerous as giving them dynamite to play with. Celluloid film is easily ignited and once it takes fire the blaze spreads with tremendous rapidity and with the generation of intense heat.

Only recently two lives were lost in a private house when boys playing with a toy projector, using the celluloid film, caused the film to be ignited. Only through good luck was the toll of life limited to the two victims, for at the time of the fire there were fully a score of children playing in the room where the accident took place. These inflammable films will be finding their way into stores throughout the country around the Christmas season. Unless vigorous steps are taken, and taken promptly, the Christmas season may be marked with an unusual number of casualties and a very high fire loss.

It is not the desire on the part of stores to violate any fire law, for most of these organizations would go out of their way to prevent the creation of such a hazard as is evolved through the distribution of nitro cellulose films to private houses. But it is ignorance of the properties of these films that leads stores to market them for use on toy projectors.

Now is the time to act. Have your inspectors call on the stores selling toy motion picture projectors and films and inquire as to the source of the film. If there is any question about its being of the highly inflammable type, and not of the so called "safety" type, the store in most cases will gladly offer a sample of the film for test. Secure such a sample, ignite it, and see how it burns. If it flares up and burns rapidly with a characteristic celluloid odor, it is the hazardous type. If it is hard to ignite and then after ignition burns very slowly with a tendency to diminish rather than increase in intensity, the film is of the safety type and need not be checked in its distribution.

The Christmas season is here. Have this hazard checked at once before damage results.

How Chief Montmeny Had His Title Changed

While the name of the fire chiefs' association was changed this year to the International Association of Fire Chiefs, legislation was sponsored three years by Chief Arthur Montmeny of Chicopee, Mass., to have his title changed from chief engineer to chief. It shows that in many instances the members have been a little quicker in acting than the association and that they have been advocating reforms individually.

The legislation enacted for this change is as follows:

An Act Changing the Title of the Chief Engineer of the Fire Department of the City of Chicopee

Be it enacted as follows:

SECTION 1. Section twenty of chapter two hundred and thirty nine of the acts of eighteen hundred and ninety-seven is hereby amended by striking out, in the second and third lines, the word "engineer" and inserting in place thereof the words: —of the fire department,—and by inserting after the word "The" in the eighteenth line the words: —"chief of the fire department and,"— so as to read as follows:

"SECTION 20. The board of aldermen may establish a fire department for said city, to consist of a chief of the fire department and such other officers and members as the board of aldermen by ordinance shall from time to time prescribe; and said board of aldermen shall have authority, to fix the time of their appointment and the term of their service, to define their powers and duties, and in general to make such regulations concerning the pay, conduct and government of such department, the management of fires and the conduct of persons attending fires, as they may deem expedient, and may fix such penalties for any violation of such regulations, or any of them, as are provided for the breach of the ordinances of said city. The appointment of all officers and members of such department shall be vested in the mayor exclusively, who shall also have the authority to remove from office, after hearing, any officer or member for such cause as he shall deem sufficient. The chief of the fire department and engineers so appointed shall be firewards of the city; but the aldermen may authorize the appointment of additional firewards. The compensation of the officers and members of the department shall be fixed by ordinance."

SECTION 2. This act shall take effect upon its acceptance by vote of the board of aldermen of the city of Chicopee, subject to the provisions of its charter; provided, that such acceptance occurs prior to December thirty-first in the current year.

Approved by Governor
February 24, 1923.

Maumee, Ohio, May Purchase Apparatus—The council of Maumee, Ohio, are considering the purchase of new fire apparatus.

1914 I. A. F. E. Proceedings Wanted—Chief John M. Evans of New Orleans, La., is anxious to procure a copy of the 1914 proceedings of the International Association of Fire Engineers which contained the report of the convention held in his city that year. If you have an extra copy, Chief Evans would appreciate if you would communicate with him direct.

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

The Equitable Fire

To the Editor:

Will you please answer the following questions?

By what method did they get water to the 34th and 35th floor of the Equitable Building in their recent fire?

How were the hose lines taken up?

Are reservoirs ever used on such buildings as the Equitable building?

Has the New York fire department any engines that would pump water through a standpipe to the 34th story?

Very truly yours,
C. L. T.,
Medford, Mass.

Answer: In the fire in the Equitable building that occurred in New York city on February 16, 1926, the water for fire-fighting purposes was conveyed to the floors in question by means of the standpipe, and lines were connected to it. Two elevators were kept running to carry up the firemen with coils of 2½-inch hose which was used in place of the linen hose attached to the standpipe. The standpipe connection at the street level was connected to the high pressure hydrant which supplied water at a pressure of 125 pounds. By means of the Underwriters' pump in the basement of the building the pressure was boosted to 250 pounds.

In reference to the third question, reservoirs, called tanks, are used in buildings of the Equitable type.

A number of years ago, the Ahrens-Fox Fire Engine Company conducted a test at the Woolworth building, New York city. In this test the water was pumped from the street level through the standpipe and out on the top of the building—796 feet above the street level.

A complete article on this fire was published on page 179 of the February 25 issue of FIRE ENGINEERING.

Finding Nozzle Pressure

To the Editor:

Will you please explain the workings of the problem where two 600-foot lines of 2½-inch hose are siamesed in to a lead line that is 200 foot long, at the end of which is a 1¼-inch nozzle? If the engine pressure is 145 pounds, find the nozzle pressure. Now assume that a third line is siamesed from another engine into the lead line. If the line is 700 feet of 2½-inch hose and the engine pressure on this line is 165, does the third line increase the pressure and if so, how much?

Question No. 2. A water tower weighing 7.6 tons, 60 feet high, having a wheel gauge of 7 ft. 3 in., carries a 2-inch nozzle. What theoretical pressure or nozzle will overturn the tower? What is the safe working pressure in this case? Please show all the figures and calculations in answering.

Very truly yours,
R. F. S.,
Buffalo, N. Y.

Answer: In the first case, it is necessary to reduce the two 600-foot line to an equivalent single line of 2½-inch hose. From the book, "Fire Department Hydraulics," one finds the factor of 3.6 for this layout. Now dividing 600 by 3.6, the result is 166. To this is added the 200 feet of the lead line, so that the total length of the single 2½-inch equivalent line would be 366 feet.

The factor for 1¼-inch nozzle $= \frac{1.25 \times 1.25 \times 1.25 \times 1.25}{10} =$ .244 approximately (the table value is 0.248). Substitute this value in the formula,

$$\text{Nozzle pressure} = \frac{\text{Engine Pressure}}{1.1 + KL}$$ where K is the nozzle factor just calculated and L is the number of fifty foot lengths of hose.

$$\text{Then Nozzle pressure} = \frac{145}{1.1 + .244 \times 7} = \frac{145}{2.608} = 55.5 \text{ pounds}$$

In computing for the third line, since the problem does not state at just what point in the lead line the third line is joined, it is necessary to assume this. Let us assume that it is joined 100 feet from the Y connection. Now it is necessary to change the siamesed line to an equivalent line of 2½-inch hose. This was calculated previously as 166 feet, to which should be added the 100 feet to the point of connection of the third line. This gives a line of 266 feet.

Where one of the lines is three times the length of the other, it is possible to work the problem by means of a simple rule. In this example the equivalent length of the two 600-foot lines plus the 100 feet to the point of connection of the third line is 266 feet, or approximately one-third length of the third line.

The rule states that when one of the branch lines is three times as long as the other, the two lines are equivalent to a single line 0.4 the length of the shorter. Applying this principle to the problem stated, 266x.4 equals 106.4. Substituting this length in the formula mentioned, there results:

$$\text{Nozzle Pressure} = \frac{155}{1.1 + 0.244 \times 2} = \frac{155}{1.588} = 97.5 \text{ pounds}$$

(155 is the average of the two engine pressures).

Therefore, by adding the third line, the nozzle pressure is increased from 55.5 pounds to 97.5 pounds.

Answer 2. Since the center of gravity is somewhere within the center of the wheel radius, it is necessary to take the radius of the circle or $\frac{87}{2} = 43.5$ inches.

The moment at one of the tower wheels to resist overturning must equal the resulting reaction times the weight of the tower. Expressed in numbers $43.5 \times 15{,}200 = R \times 60 \times 12$.

$$R = \frac{43.5 \times 1520}{72} = \frac{66100}{72} = 918 \text{ pounds,}$$ which is the force at nozzle necessary to unbalance tower. As the results of tests conducted by engineers, the following formula has been developed:

Reaction equals 1.5 D x D x p.

In this formula D equals the diameter of the nozzle in inches and p equals the pressure at the nozzle in pounds. By substituting in this formula, having already computed the value for the reaction, it is easy to calculate the nozzle pressure that equals the 918 pounds. Therefore the safe working pressure will be a few pounds below this figure.

$$918 = 1.5 \times 2 \times 2 \times p, \text{ or } p = \frac{918}{1.5 \times 2 \times 2} = \frac{918}{6} = 153 \text{ pounds.}$$

Then 150 pounds may be taken as the safe working pressure.

Placing Fire Apparatus

To the Editor:

In the case where it is necessary to sound a second alarm for additional apparatus, is it proper for the chief who ordered the second alarm to place the companies as they roll in or should the company commanders select their own hydrants? Is there any fire department in the country where chiefs place the engines at fires?

Yours truly,
H. T.,
Charleston, S. C.

Answer: The usual proceedure where a chief officer in charge of a fire calls addition apparatus, insofar as assigning the apparatus upon arrival is concerned, is for chief sending in the call for additional apparatus to assign the companies rolling to different hydrants, or if the companies are to operate on other streets than the street in which the chief officer is located, the companies are told to take the nearest hydrant on this, that or the other street and stretch into the rear or side or through buildings at rear as the case may be.

The New York Fire Department, as well as many other fire departments, have a standing rule that companies reporting in on additional alarms report to the chief for assignment.

As a matter of fact, this is one of the rules of the New York Fire Department which is rigidly enforced. No company is

permitted to take a hydrant nor to perform any operations when coming in on an additional alarm until the officer there first reports to the chief officer in command and gets instructions.

In the event of a very large fire where 4th and 5th alarms are sent in then the chief of the department gives his instructions to the assistant chief who in turn carries out the general instructions of the chief, and incidentally makes the assignments of companies.

Only by such an arrangement can efficient work be done at a fire, for the chief will then know exactly where the lines are placed and can use his lines to best advantage, and can avoid the placing of more engines on the small size mains than the main will be capable of supplying.

In small fire departments the practice of placing the apparatus by the company commander is commonly encountered but it is not considered as conducive to efficient work.

Somerville Questions and Answers

Following is the conclusion of the questions asked at a recent examination in Somerville, N. J., with the answers thereto:

Question 8. Rules and Regulations of the Dept. of Public Safety relative to the packing and marking of explosives? State fully how explosives are packed and marked for transportation.

Answer 8. Rules and Regulations of the Department of Public Safety of various states and cities differ widely, and as rules and regulations covering your city are not at hand it is impossible to give a definite answer to the first part of this question.

The packing and marking of explosives is a lengthy subject for complete discussion here and additional data can be secured by referring to "Regulations for the Transportation of Explosives and other Dangerous Articles by Freight and Express and As Baggage" which is issued by the Interstate Commerce Commission, Washington, D. C.

High and low explosives depending upon their makeup and per cent of their various contents as a general rule govern the type of container, form and quantity in which they may be packed for transportation. It is almost useless to go into details unless the various types could be treated here.

All markings must be conspicuous, the letters not to be less than 7/16 inches in height. The top of boxes must be marked "This Side Up." Kegs or barrels must be marked on both ends "HIGH EXPLOSIVES—DANGEROUS" if such is their contents. Other markings are permitted but must not be more conspicuous than nor must it obscure the prescribed markings.

Question 9. Define the following: (a) incombustible partition; (b) Fire Protected; (c) Fire Limits; (d) Private Garage.

Answer 9. (a) An incombustible partition is one which is composed or constructed of non-combustible materials.

(b) *Fire Protected:* The term "fire protected" means protection of combustible materials with a non-combustible covering, such as cement plaster on wire lath.

(c) *Fire Limits:* As usually understood, fire limits are those limits of a city within which no frame, wood or other combustible structure shall be built.

(d) *Private Garage:* By private garage is usually meant a building wherein are kept three or less motor vehicles, and which are for private use only.

Question 10. How would you determine the engine pressure required to play an effective stream of water through a single line of 2½" hose using a 1¼" tip from the street into the window sill through which it enters on the fourth floor. This is located at a hydrant four hundred feet distant from the building.

Answer 10. The first step in the above problem is to find the distance of travel of the stream from the nozzle to the window sill through which it enter on the fourth floor. This found as follows: approximate height at which stream will enter—40 feet (12 ft. being allowed for each of the three floors and 4 ft. allowed for height of entrance on 4th floor). Approximate distance of nozzle from building 40 ft. Square 40 for height and 40 for distance from building giving a total of 3,200. Square root of 3,200 equals 56.5 or 57 feet. Add to this 10 feet for penetration which gives 67 feet.

Allowing one pound pressure for each foot in range a nozzle pressure of 67 pounds will be required at this nozzle.

Then by formula E. P. equals N. P. x (1.1 plus K L)
K for 2½ in. hose with 1¼ in. tip is .248
L equals 8 (50 ft. lengths)
Substituting the above figures in the formula we have
E. P. = 67 x (1.1 + .248 x 8)
= 67 x 3.084 = 206.62 or 207 pounds approximately.

Question 11. Write a letter to Payson Dana, Esq., of one hundred and fifty words, on SPRINKLERS in a SCHOOL-HOUSE, HOSPITAL and other buildings where people assemble.

Answer 11.

DATE.

Mr. Payson Dana, Esq.,
Town.

Dear Sir:

Herewith is information on sprinkler systems, their use and operation, applicable to public buildings.

Sprinkler systems in school houses, hospitals and other places of public assembly, are intended to provide a means of protection against fire.

They are intended to operate on a fire at its start and by so doing hold it in check long enough to allow the occupants of the building to escape, or for the fire department to arrive.

A sprinkler system may be of either the wet or the dry pipe type. In the wet pipe system, the pipes at all times contain water and which is released on a fire by the fusing of a link in the sprinkler head by the heat of the fire. This system is used where it is protected from extremely cold weather, for the water would be apt to freeze in the system should it be unprotected.

In the dry pipe system the lines are dry, the water being held back by a check valve which is released when air is freed from the system through the fusing of a link in the sprinkler head. This type of system is generally used where the lines are exposed to very cold temperatures and where no protection can be provided by heating.

Sprinkler systems get their water supply from tanks which are located on the roof of the buildings in which the systems are located or from standpipe connections to which fire departments connect at the street level, forcing water through the system. Some systems are provided with both means of supply.

Sprinklers are considered the most effective fire safety devices for schools, hospitals and other public buildings.

Meaning of Vacuum

To the Editor:

Will you please answer the following question for me:

A 750 g. p. m. pumper is drafting water for twelve feet through a 5-inch suction and the gauge shows a 15-inch vacuum. What does the 15-inch vacuum mean?

Does the vacuum increase with the depth that you are drafting?

What is the formulae for calculating the inches of vacuum that should be shown on the vacuum gauge, when the length of suction and size are given?

Very truly yours,

J. N.
Alhambra, Cal.

Answer: In drafting water it is necessary to exhibit the air above the surface in the pipe through which it is desired to draft the water. The air presses down on the surface of the water outside of the tube at a pressure equal to 14.7 pounds for each square inch of surface and this pressure is communicated to the water within the suction line. As the air is being removed, there is no atmospheric pressure to work against the pressure on the outside of the column and the water will rise in the tube; it will flow up to the discharge point as the air is being removed.

An indication of the vacuum produced to do this is shown on what is known as a vacuum gauge. The pressure gauge with which most people are familiar records in pounds per square inch but the needle on the vacuum gauge points to inches of mercury. One inch of mercury will support a column of water of like diameter, 13.59 inches high. Now suppose that the reading on the vacuum gauge is 15 inches, it means that the pump is doing the work equivalent to pumping the water through a vertical height of 13.59 x 15 or 2,030 inches; this is equal to 16.9 feet.

So much for the theory. However, when water flows through a hose line, some of the pressure is lost in friction, and when the water flows through the suction hose at the rate of 750 g. p. m., some of the pressure is lost through friction in the 5-inch hose. Therefore the computed vacuum is greater than the actual one. In the problem given, the results come out otherwise, and either the vertical distance was not measured properly or the vacuum gauge is not reading properly.

To find the inches of vacuum, multiply the vertical distance through which the water is being drafted (that is the vertical distance from the top of the water to the center line of the pump intake) by 12 and divide by 13.59.

The deeper down that one is drafting, the higher will be the vacuum. Do not think that because the suction line is dropped lower into the surface of the water that the vacuum should rise. The water will rise inside of the hose until it is equal to the elevation of that outside of the hose, and the depth of hose below

the water level does not enter into consideration. Should the water level drop, that is another matter.

The reading on the suction indicates to an experienced operator, whether or not the pump strainer is clogged by foreign matter or if there is air leaking into the hose line.

Protecting City from Fire After Hurricane

(*Continued from page* 1196)

with their apparatus made miraculous escapes and were immediately placed in active service. Five times during that beating, slashing fury, the apparatus was called out and each time the riders of red wagons responded in heroic fashion that will be recorded in hall-of-fame history.

Big Aerial Truck is Overturned by Wind

On the second of these calls, or about 3 a. m., Hook and Ladder No. 1 was overturned. It was an accident that will never be forgotten by any member of the crew. Turning into Second Street, Lieut. Bob King thought that the driver, Charlie Williams, had lost control, but much to the contrary, the one hundred and five horse power motor with full speed ahead could not make headway and was being reversed by the terrific force of the wind. It was too great, the apparatus turned over and the men were thrown in every direction. It was some time before each was accounted for, the last to be brought into the shelter of a nearby doorway was Leon Rooney the Tillerman who was unconscious with lacerations about the head and body that caused him to bleed freely. First aid was tendered by the crew who had to lay huddled in the doorway for almost three hours before it was possible to venture out for help. Foss received internal injuries that he tried to disregard until the pain became so great that he had to give up.

Upper, On the Way to Miami Beach, After Hurricane, September 18. Center, Destruction on the Road to Coconut Grove, Miami. Lower, A Church Destroyed by the Storm.

At about six thirty a. m. a lull came which afforded the crew an opportunity to remove their wounded men to better safety. One of the remarkable incidents concerning this almost tragedy was that in less than thirty minutes after the apparatus was over turned, there was another aerial truck placed in service. Another incident that we want to go to the public is that the call that the crew was answering was a false alarm, sent in by a man 'who thought there was a fire.'

Every Man in Department Worked Fearlessly

"It is with great glory that we will always recall that every man on duty during that storm worked in the same fearless manner that has caused our department to be considered the best in the state of Florida and one of the best in the country. Let us not forget that one of the first official orders that was communicated to each station with the breaking of the storm was: Get every man on duty and keep every man on duty until further orders. That doesn't have a heroic atmosphere until one stops to realize that the execution of that order meant that every man should leave those that he loves and cherishes to answer the call of his profession, and help other poor unfortunates. The response was wonderful and during the lull every available man was on duty helping and assisting in everything that would benefit others with nothing more than occasional thought and prayer for the safety of his own.

Storm Returns with Greater Fury After Lull

With a raging madness, the storm came back at about seven a. m. This time from the south and with far greater volume than the storm that had raged all through the night from the north. It seemed an impossibility to try to do anything. Hell had broken loose on earth. To attempt a description of what happened in the next three or four hours would be absurd. Windows crashed, trees were severed, houses toppled over, wires were tangled in masses and every one called on the Almighty for mercy. Police and privately owned ambulances battled out into the storm to help those that escaped death and others dug into debris for those who had perished.

Men Do Rescue Work and Provide Shelter

"Our men went into the streets and carried and dragged refugees to possible shelter of the stations. Every station in the city had from thirty to a hundred women and children to care for. Our beds were given with every available sheet, blanket and dry bit of clothing that would help to comfort the sufferers. First aid was tendered to the wounded and volunteers prepared food for the victims.

"This noble work lasted for three days, and longer in some stations. Just as soon as the storm subsided Engine 8 went into service pumping water from flooded buildings, Engines 9 and 4 went into rescue work, clearing debris in the hunt for dead. Truck 2 cleared debris in search of victims and Engine 6 went out to assist locomotives in a supply of water so that they could go out for relief. Every Engine and Hook and Ladder Company was called on to execute a relief duty to those who were helpless.

"The untiring efforts of the personnel of this department will be scribed in the pages of genuine heroism. There was no let up to the efforts of the officers and men to help others. Engine crews worked night and day in rescue work. Pumped water to the needy in the northwest section and comforted all with food and dry clothing. Most of the men worked for five and six days without any relief whatsoever. Just as soon as it was possible, the Line crew reestablished a temporary telephone system and in less than four days over fifty per cent of the fire alarm boxes were recommissioned. At no time during the disaster was any company actually out of communication with the Chief's office as there was a messenger service with automotive transportation constantly in action."

Xmas Displays May Cancel Insurance

The New York Board of Fire Underwriters through William B. White, superintendent of the bureau of surveys has issued a warning that holiday displays in stores or display windows made with Christmas greens, cotton, tissue paper or similar materials may nullify insurance policies. He pointed out that the provisions of the standard fire insurance policy acts as "practical prohibition" of such decorative material.

This prohibition is said to be equally applicable to churches, clubs, public buildings and private homes. The policy clause curtailing the use of special material for displays reads, "Unless otherwise provided by agreement in writing added hereto this company shall not be liable for loss or damage occurring, while the hazard is increased by any means within the control or knowledge of the insured."

Special electrical effects must also have the approval of the Board of Underwriters to make the insurance policy effective, Mr. White advises.

Clinton, N. J., Purchases Siren—A siren has been purchased by the fire company in Clinton, N. J.

GAMEWELL ANNOUNCES WINNERS OF $500 FIREMEN'S RELIEF CONTEST

Supt. Charles T. Thayer of Putnam, Conn., and Chief R. Price of Springfield, Mo., First Prize Winners

THE winners of the $500 Firemen's Relief Contest for the best account or a newspaper clipping showing the invaluable part played by the fire alarm system in the every day life of a municipality has just been announced by the Gamewell Company of Newton Upper Falls, Mass., who has been conducting the contest for the past months.

Chief W. R. Price, Springfield, Mo.

There were two classes of awards, and the first prize of each class was $250—the winner had the privilege of naming the relief association to which the money should be paid.

W. R. Price, Chief of Fire Department, Springfield, Missouri, was picked by the judges as the winner of Class No. 1 for "The best news clipping or official report of a fire where the use of the Fire Alarm Telegraph System saved life or property." The following item was submitted by Chief Price:

"On March 7th, at 12:15 a. m., an oil stove exploded in the office of Dr. Wells at 328½ South Avenue, setting everything in the room on fire. The Doctor ran into the next room to phone the fire department. By the time he got central the fire had eaten through the door and was so hot he had to leave before giving the alarm.

"While all this was taking place a small boy on the street saw the blaze bursting through the windows, and pulled box No. 12.

"The fire was in a bad block, just a lumber yard with a brick wall around it. The wind was blowing forty miles an hour at the time of the fire and in the right direction to carry the fire through the block.

"This happened on a Sunday when every business house was closed so it would have been hard to reach a phone before the fire had gained great headway. As it was, we stopped it in the room in which it started with a very small loss."

Charles P. Thayer, Supt. Fire Alarm, Putnam, Conn.

In Class 2 Mr. Charles T. Thayer, Supt. Fire Alarm, Putnam, Conn., was selected by the judges as the lucky man for "The best news clipping or official report of a fire where a delayed alarm could have been prevented by the prompt use of the Fire Alarm Telegraph System. The following clipping was submitted by Mr. Thayer:

"Springfield, Mass., Jan. 20.—A girl telephone operator in a downtown exchange lost an opportunity to be a heroine and her failure to answer resulted in a $100,000 fire in the heart of the automobile district early today.

"M. A. Friend, night watchman in the plant of the John R. Lyman Waste Company on Liberty Street, discovered a bale of rags burning. Finding he was unable to check the flames, Friend ran to the telephone, hoping to give an emergency call to fire headquarters.

"Friend tried frantically to get an answer but repeated working up and down of the telephone hook brought only silence. Then Friend ran outside and summoned help.

"By this time, however, the fire was burning fiercely. Flames swept the three story brick building, destroying the waste company's plant and plants of the Lyman-Beers Company, plating and polishing supplies, United Oriental Rug Company and Witherbee Ignition Company.

"Firemen had a two hour battle to keep the fire from spreading to nearby buildings, a majority of them occupied by automobile firms.

"The telephone line over which Friend had tried to call was found to be in working order."

The winner in each class had the privilege of designating a local firemen's relief association as the recipient of the prize. Chief Price selected the Springfield Firemen's Relief Association of Springfield, Missouri, and Mr. Thayer designated The Putnam Firemen's Benefit Fund of Putnam, Conn. A check for $250.00 has been sent to the treasurer of each association.

Items and clippings submitted by the following are worthy of honorable mention: A. R. Pickard, Central Fire Station, Everett, Mass., Fred G. Smith, Deputy Chief, Winthrop, Mass., Con. Combis, Captain Engine Co. No. 35, St. Louis, Mo., D. S. Hossley, Retired Captain, Vicksburg Fire Dept., Chas. V. Lane, Dept. of Public Safety, Lansing, Mich.

The judges for the Contest were I. H. Case and Fred Shepperd, both of FIRE ENGINEERING, and a representative of the Gamewell Company.

Arkansas Firemen Meet in Jonesboro

The annual convention of the Arkansas State Firemen's Association was held in Jonesboro on September 27-29.

In the absence of the mayor, who was confined to bed by illness, Eli W. Collins of the city council welcomed the delegates. J. F. Christy, general manager of the water and light plant, conducted the visitors through the plant and explained the operations of the new utility.

The first morning of the convention was devoted to memorial services. Addresses were made by President W. J. Springer and Chief Charles W. Hafer. Papers were delivered by Chief W. A. Thomas of El Dorado, H. B. Savage and George D. Suter of the Arkansas Fire Prevention Bureau. The Texarkan drum and bugle corps accompanied Chief Springer and aided materially in enlivening the convention.

The children of the local schools attended some of the convention sessions and speakers from the firemen's gathering addressed the school children on fire prevention subjects. The business sessions of the convention were practical and of much benefit to those in attendance. It was decided that one day of the next annual convention be devoted to practical methods of fire fighting from scientic standpoints, using apparatus to demonstrate the work that can be done with different sized nozzles, various water pressures, and other worth while things in controlling fires in every day fire fighting. This will be an important feature at Russellville, which was selected as the next convention city.

All of the officers were re-elected and are as follows: W. J. Springer, Texarkana, president; L. D. Hickey, Joe Millican of Blytheville and Chief Whayne of England, vice-presidents; Harry Compton, Little Rock, secretary-treasurer; John Grant, DeQueen, trustee for three years.

Chief of Oak Park, Ill., Dead

Walter C. Wolff, chief of the fire department at Oak Park, Ill., died after a year of acute illness.

He went to Oak Park in June, 1918, and joined the local fire department. By constant application to his duties, he built up the department to its present efficiency.

The funeral was attended by city officials, by details from both the police and the fire departments and by chiefs from the neighboring cities. He is survived by his widow, three daughters, aged parents, one brother and three sisters.

In order to accommodate the large number who attended the services, but who were unable to find seats in the church, a system of amplifiers were installed in the basement of the church through the courtesy of station WGES.

Hartford, Conn., to Have New Fire Station—An architect has been commissioned to draw the plans for the new fire station to be erected in Hartford, Conn. The building is estimated to cost $140,000, and $175,000 will be appropriated for the improvement.

NEW YORK CITY HAS EPIDEMIC OF BIG FIRES OVER WEEK END

From November 10 to 14 There Were Four Extra Alarm Fires—Department Is Kept on the Jump

NEW YORK CITY had a run of big fires over the week-end of November 13. The activity started on November 10 in Brooklyn with a fifth alarm blaze at 992 Metropolitan Avenue, in a candle factory and garage, and extended easterly along Metropolitan Avenue to No. 984 and westerly to No. 1012, embracing a bottle manufactory, iron

Ruins of the Diamond Candle Company's Plant, Brooklyn

Note the flimsy character of the frame buildings of the plant, and the good stop made by the New York Fire Department. This was one of a series of big fires in New York City over the week-end of November 13.

works, fibre barrels, automobile cushion works, and damaged dwellings in the rear at 311 to 317 Dove Street.

All the premises were old frame structures of two and three stories. The cause is unknown. The fire burned and severed the electric light and public service cables on poles along Metropolitan Avenue and put out of commission two fire alarm telegraph cables.

The first alarm was at 3:56 p. m. and the fifth alarm at 4:34 p. m. Chief Kenlon responded on the fourth alarm and sent out the fifth.

On Sunday morning November 14 at 1:42 o'clock fire broke out in the old De La Salle School on Central Park West near 6th Avenue. It is seven story brick and was no longer used by the De La Salle Institute, but by miscellaneous occupants, as for instance, storage for scenery, art studios, clubs, offices, theatrical agencies, dancing school, auditoriums, conservatories and musical business.

It was a third alarm fire, the first at 1:42, the second at 1:50 and the third at 1:53 a. m. Assistant Chief Joseph B. Martin was in charge. The building runs through the block to 58th Street and there adjoins the Hotel Sevilla which was scorched in places.

Chief Martin had hardly gone back to bed when a fourth alarm in the business section of Jamaica, L. I., which is in the corporate limits of the city of New York, brought him many miles of a run. The fire originated in the cellar of a four story brick warehouse and commercial building and extended to the roof. The first alarm commanding officer in charge was Chief Stone of Jamaica. The alarm was at 4:50 a. m., the second alarm at 5:05, the third at 6:09 and the fourth at 6:24 o'clock brought Chief Martin. The fire swept through the entire structure and embraced Nos. 16, 601, 3, 5, 7, 9 and 11 Jamaica Avenue.

On Sunday night November 14 at 10:29 o'clock fire broke out in the cellar of a paint store at Columbus Avenue and 79th Street, a one story brick, with a corner area of about 100 x 75, and embracing 398 to 408 Columbus Avenue and 109 to 115 West 79th Street, occupied by stores, bowling academy, dance hall, upholsterer and decorator, bromo seltzer works, furriers, carpenter ship, a market, a plumber, and did slight or trifling damage by water to the Hotel Orleans and the Hotel Anderson on West 80th Street. It was a fifth alarm fire. The alarms were as follows: 1st at 10:29 p. m.; 2nd at 10:40; 3rd at 11:06; 4th at 11:40 and 5th at 12:05 Monday morning. Assistant Chief Martin was in charge. The fire burned for at least three hours. It interrupted service on the two elevated lines along Columbus Avenue and drove many of the patrons of the two hotels on West 80th Street to the street.

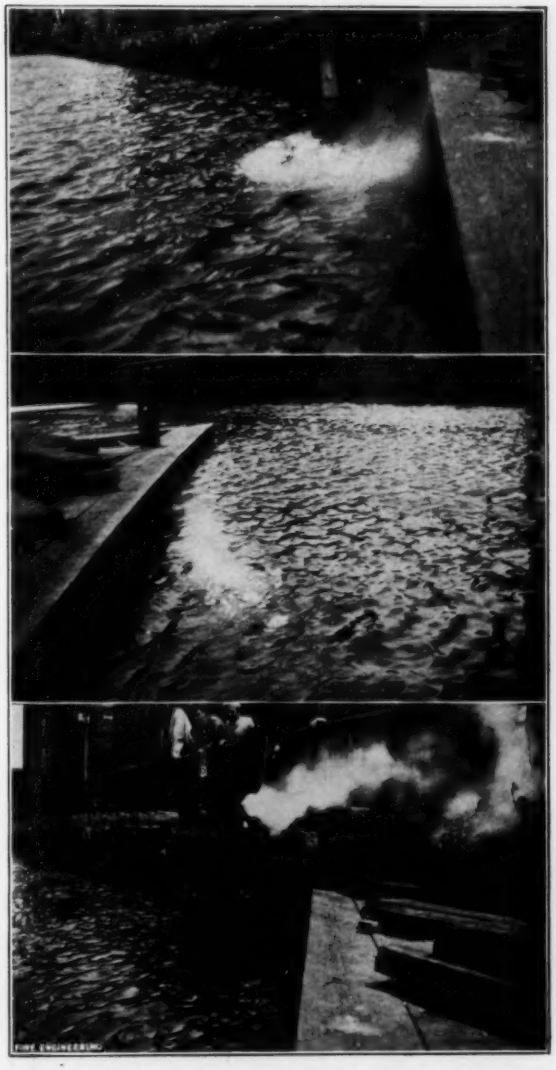
An Unusual Fire

Last spring at the Bassett Metal Goods Company at Shelton, Conn., a large piece of belting which was used for conveying metal parts, which had been lacquered, to a drying room took fire. This belt had through its period of use secured a heavy coating of the lacquer and from all appearances the coating between the surface and the belt itself was burning.

In order to put the fire out the belting was immersed in the water at a dock alongside the plant. After being submerged for some time it was withdrawn but still was burning. It was immersed a second time and upon being withdrawn was found still burning. It was finally put under water for one hour and a half and even this did not extinguish the fire.

The theory of this remarkable fire is that the lacquer contained within itself ingredients which furnished the necessary oxygen for the supporting combustion so that although the belting was placed beneath the water, the fire continued to burn due to the fact that the lacquer did not permit the water to reach the zone of combustion and the chemicals within the lacquer provided the necessary oxygen for maintaining combustion.

The three illustrations herewith show three different stages of the fire. The upper shows the bubbles rising from the water when the belt was first immersed. The center picture



Upper: Smoke Rising Through Bubbles When Belt was First Immersed. Center: After Second Immersion When Smoke Continued to Rise. Lower: Belt Removed After Being Submerged for One hour and a Half. Note Vigor of Combustion.

shows the smoke and bubbles rising from the fire after the second immersion.

The lower snapshot is of the belt after it was removed following an immersion of one hour and a half. Note how vigorously the fire still burns.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending Nov. 5

SUDBURY, ONT.—Several business establishments damaged.. 45
PURVIS, MISS.—Main building of Agricultural High School... 25
MARYVILLE, TENN.—Building of W. D. Green Motor Company destroyed 150
BIRMINGHAM, ALA.—Science Hall at Howard College destroyed 45
SAN FRANCISCO, CALIF.—Warehouses of Howard Terminal damaged 45
HANOVER, PA.—Dougherty Motor Garage and adjoining property damaged 35
DENTON, TEX.—Buildings owned by A. V. Owsley and John Collins 30
RELEE, VA.—Brick plant owned by West Brothers Brick Company 215
SAN FRANCISCO, CALIF.—A Japanese freighter "Montreal Maru", pier 38, damaged..... 80
BROOKFIELD, MO.—Building occupied by Chevrolet Automobile Co. 45
SAN LEANDRO, CALIF.—Plant of Lewis Pickle Works destroyed 125
ROCHESTER, MICH.—Garage of Philips & Jerome and contents destroyed 65
KLAMATH FALLS, OREG.—White Pelican Hotel destroyed.. 255
POMPTON LAKES, N. J.—Manufacturing plant of H. J. Furler destroyed 40
HAZARD, KY.—Johnson Building on Main Street damaged.... 65
EL DORADO, ARK.—State Hotel destroyed..... 25
WINCHESTER, IND.—C. V. Grant mill and elevator destroyed. 30
LOUISVILLE, KY.—Home of Harry S. Thomas damaged..... 45
PORTLAND, ME.—Plant of Portland-Monson Slate Company destroyed 25
WESTON, MASS.—Barn on Merriam estate destroyed..... 30
PITTSFIELD, MASS.—Store and apartment building owned by H. S. Blaisdell destroyed..... 80
BROOKFIELD, MASS.—Engine house destroyed..... 30
BUCKROE BEACH, VA.—Several cottages damaged..... 30
FERN RIDGE, B. C.—Langley Timber Products Company Mill destroyed 80
BRYAN, TEX.—Lawrence cotton warehouse destroyed..... 100
BUTLER, PA.—Dairy building on Squab Farm, owned by L. E. Kramer..... 55
NEWBERRY, MICH.—Building housing hardware department of William Horner Company..... 50
PITTSFIELD, N. Y.—Henry S. Blaisdell block damaged..... 45
LOUISVILLE, KY.—Saw mill and boiler shed of Louisville Point Lumber Company destroyed..... 25
ELKIN, N. C.—Plant of the Elkin Furniture Company destroyed 125
LIMA, OHIO—Main barn of Lima Driving Park destroyed..... 65
PALMYRA, ILL.—Fire starting in bakery does damage estimated at 90

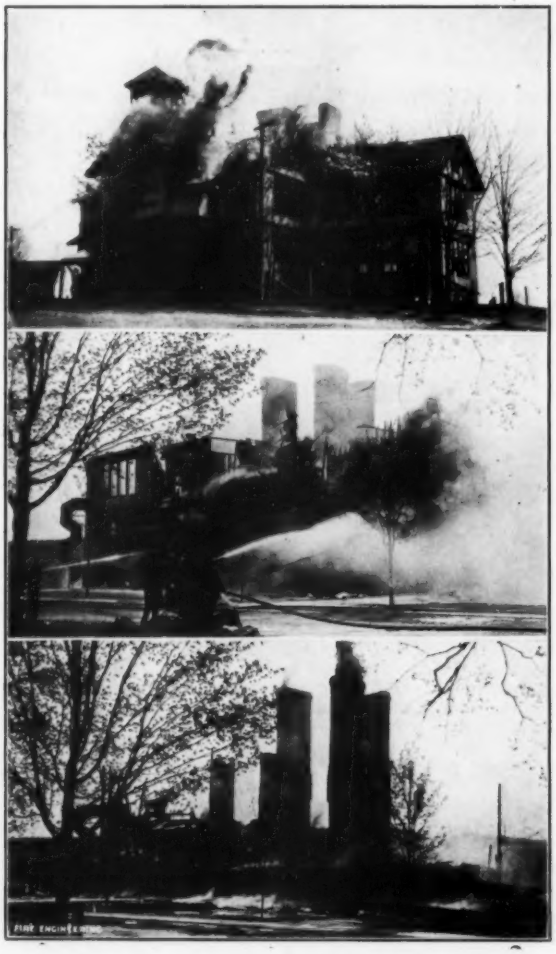
Week Ending Nov. 12

BROOKHAVEN, MISS.—Planing mill of E. B. Sauis Lumber Co. 35
PORT JERVIS, N. Y.—Port Jervis Country Club destroyed.... 50
BOSTON, MASS.—Hoover Furniture Co. and several other establishments at 94 Washington Street damaged..... 45
COLUMBUS, OHIO.—Teachout Sash & Door Company plant.. 255
DURHAM, N. C.—Mill of Louise Knitting Mill Mfg. Company.. 65
LENOX, MASS.—Two barns owned by Mrs. R. T. Auchmuty and Miss K. Carey, destroyed..... 60
GALLIPOLIS, OHIO.—Letrat Flour Mill destroyed..... 35
NATCHEZ, MISS.—Natchez Hotel and surrounding property.. 630
YOUNGSVILLE, PA.—Plant of Fashion Furniture Company destroyed 45
ST. LOUIS, MO.—Manufacturing building at 13 S. Main St. owned by W. E. and L. Beckmann destroyed..... 70
CENTERVILLE, IOWA.—Fisher Lumber Company yards and surrounding property 80
RALEIGH, N. C.—Home of Mrs. K. D. Raney destroyed..... 45
OBERLIN, KAN.—O'Dell Hotel and several business establishments 125
NANTICOKE, PA.—Plant of College Silk Throwing Mill destroyed 60

Courtesy, Davenport Democrat

Davenport Drug Store Destroyed in $175,000 Fire

The illustration herewith shows the ruins of the Bengston Drug Company's store at Davenport, Iowa, which was destroyed recently in a midnight fire, with severe damage to adjoining business establishments, amounting to an estimated total of $175,000. The fire, which was thought to have originated from spontaneous ignition, was discovered by a nightwatchman, who turned in an alarm, when he found the entire store in flames. The blaze started in a stockroom and spread to the store proper before it was discovered. The damage to surrounding property was principally by smoke and water. It looked at the early stages of the fire as if the entire block would go, but the Davenport Fire Department, under Chief Denger, prevented the spread of the flames and confined them to the drug store.



No Lives Lost in Large School Fire

A school in Marion, Wis., in which there were four hundred school children, caught on fire with a resulting loss of $50,000. The remarkable thing was that none of the children was hurt and that they all made a safe exit to the street; the fire occurred at 10 a. m. The upper illustration shows the wooden school building at the outbreak of the fire and the other prints show the fire in more advanced stages. The building was a total loss.

FORT SMITH, ARK.—Warehouse of Co.-operative Window Glass Company 30
KANSAS CITY, KAN.—Fertilizer department of Wilson & Company 40
LOUISVILLE, KY.—An interurban car and 15 pouches of mail destroyed 25
NEWARK, N. J.—Tenement at 22-24 Fourteenth Avenue damaged 25
GALLATIN, TENN.—Warehouse of Dark Tobacco Growers' Association 120
GAINESBORO, TENN.—Jackson County Court House Destroyed 50
RAYMOND, ALA.—Several business establishments destroyed.. 150
WEIRSDALE, FLA.—Packing house of the Lake Weir Packing Co. 50
BLOUNTSTOWN, ALA.—Plant of Neal Lumber and Mfg. Company 45
RIDGWAY, PA.—Plant of the St. Mary's Sewer Pipe Company 425
SAN FRANCISCO, CALIF.—Bay Cities Enameling Works and surrounding property 170
SAN FRANCISCO, CALIF.—Building occupied by Bemis Brothers Company and M. Phillips & Co. 85
MALVERN, PA.—Barn on farm of Mrs. E. L. Roberts, Sugar Road 35
HOUSTON, TEX.—Home of J. H. Kirby, Smith & Pierce Sts., damaged 125
LOS ANGELES, CALIF.—Factory and two bungalows in Boyle Heights dist. 40
LEAVENWORTH, KAN.—Garage and 14 motor cars destroyed 40
FORD EDWARD, N. Y.—Warehouse of J. W. Holler Construction Co. 85
BLOSSOM, TEX.—Buildings of the Lowrence Hardware Co. and Texas Power & Light Co., destroyed 25
CLEBURNE, TEX.—Two business buildings owned by Mrs. S. C. Ash 40
WICHITA FALLS, TEX.—Bottling plant of W. F. Wear and surrounding property damaged 45
PARRISH, ALA.—Several business establishments destroyed... 45
LAKE VILLAGE, ARK.—Sunnyside cotton gin near here destroyed 35
TOLEDO, WASH.—Toledo Company's mill on Salmon Creek... 70
CONNELLSVILLE, PA.—Old opera building destroyed 85
WEST CHESTER, PA.—Cattle barn owned by H. P. Whitney, west of Kennett Square, destroyed 45
UPPER SANDUSKY, OHIO.—Upper Sandusky Mill owned by S. N. Clark 45
BEAUMONT, TEX.—Spindle Top Old Field damaged 80
LOS ANGELES, CALIF.—Clothing plant of Hunt, Broughton & Hunt 70
BROOKLYN, N. Y.—Diamond Candle Company plant destroyed 300
MARRERO, LA.—Moss Factory of Delany Moss Company destroyed 25
SCRANTON, PA.—Plant of Pensack Drug Company damaged.. 25
BROOKLYN, N. Y.—Building occupied by Recreation Bowling and Billiard Academy, 400 Fulton St. 45

Week Ending November 19

EVERGREEN, COLO.—Several business buildings and residences 40
WILBUR, WASH.—Old M. E. & E. T. Hay Building destroyed.. 55
COTUIT, MASS.—Codman Point, summer home of J. O. Alsop, of Brookline, destroyed 25
EVELETH, MINN.—Fire does damage estimated at 70
BRIDGEPORT, CONN.—Tailoring establishment of J. Fishelberg and adjoining establishments 25
ROBERTSVALE, IND.—Fisher Brothers planing mill destroyed. 210
ALLENHURST, N. J.—Sheds of Boynton Lumber Co. and other adjacent property 50
BEND, ORE.—Metolius Flour Mill owned by H. M. Seetsoff..... 65
MORGANTOWN, W. VA.—Fire does damage of 80
WINSTON-SALEM, N. C.—Odd Fellows Building housing lodge and Rosenbacher & Bro. Dept. Store 125
CHICAGO, ILL.—Plant of Reliable Picture Frame Company destroyed 80
NEW YORK, N. Y.—Art studio building at 108 West 59th Street 250
WEST ORANGE, N. J.—Essex County Vocational School destroyed 80
SALADO, TEX.—Five business buildings destroyed 25
OWENSBORO, KY.—Home of Frank Gunther destroyed..... 25
SAN JOSE, CALIF.—Heple garage damaged 85
JOLIET, ILL.—Adam Arcade Building destroyed 150
ANDALUSIA, ALA.—Dixie Hotel destroyed 30
COLUMBUS, IND.—Unit of plant formerly occupied by Emerson Brantingham Company 85
ALBANY, N. Y.—Wolferts Roost Country Club virtually destroyed 85
GENEVA, N. Y.—Three story brick block at 484 Exchange Street 25
LUMBERTON, N. C.—Several business establishments damaged by fire starting in L. H. Caldwell store 210
TERRA BELLA, CALIF.—Hotel Terra Bella destroyed..... 50
FRESNO, CALIF.—Warehouse of Madary Planing Mill Company. 170
SAN FRANCISCO, CALIF.—Freighter "Lancaster" owned by Norton, Lilly & Company 170
HENDERSONVILLE, N. C.—Brenner-Penny Department Store. 215
BROOKLYN, N. Y.—French Building, Fulton & Smith Sts. damaged 50
BRONX, N. Y.—Hank Chemical Company, 233 W. 230th Street. 25
CRAWFORD, COLO.—Crawford State Bank and several surrounding business establishments 50
SHARON, OHIO.—Standard Hotel damaged 35
FALMOUTH, MASS.—Summer home of A. H. Washburn destroyed. 180
TARBORO, N. C.—Plant of Leggett Lumber Company destroyed 30
SWINK, COLO.—Warehouse of Holly Sugar Corporation..... 645
RUTLAND, MASS.—Rutland Congregational Church destroyed. 45
SULPHUR, KY.—Turners Station and two adjoining residences 25
URANIA, LA.—Dry kiln owned by Urania Lumber Company, Ltd. 35
NATCHEZ, MISS.—C. G. Miller store and Feltus Brothers warehouse 30
BARTLESVILLE, OKLA.—Residence of Mrs. W. G. Hait and adjacent property 85
GROVETON, TEX.—Collins Building damaged 65
WELLSBURG, W. VA.—W. W. Beall's cottage and 9 additional dwellings at Belleview Park 25
TROY, N. Y.—Building of United Cash Market Company damaged 25
LOGANSPORT, IND.—Obenchain & Boyer Flour Mill, and Presbyterian Church destroyed 50
LISMORE, MINN.—Several business establishments including post office and Royal Theatre destroyed 125
MIAMI, OKLA.—Ore mill of the Golden Rod Mining & Smelting Co. at No. 27 Mine 85
CHICAGO, ILL.—Garage at 3122 Ogden Avenue destroyed..... 125

Chief Browning of Central Falls, R. I., Dead

Chief Robert Browning of Central Falls, R. I., died as the result of injuries sustained at a fire on November 20. His death brings to an end a life devoted to the science of fire-fighting and to activities in the various firemanic organizations.

The Late Chief Robert Browning.

The chief responded to a call to fight a Pawtucket, R. I. fire in a paint shop. In addition to Chief Browning, the owner of the shop lost his life.

Two years ago on November 19, Chief Browning was presented with a gold badge as a mark of esteem in which he was held by the various members of the fire department. More than three hundred were present at the presentation of this badge and a short history of the chief was read.

Chief Browning joined the Central Falls fire department thirty-three years ago as a call man. Two years after that he was appointed a permanent fireman and a year after this, he was promoted to lieutenant and superintendent of the Kendal street station. Seven years ago he was advanced to the captaincy of Hose 2 and later when Chief Clinton A. Wilbur resigned from the department in 1922, Chief Browning was given entire charge of the department.

The funeral services for the late Chief Browning were held at St. George's Church, Central Falls, and his former comrades met at the fire headquarters from where they left in a body to the church.

What the Chiefs Saw at New Orleans

Above is a picture of George Sylvest, Indianapolis police strong man, breaking stones with his bare fist. This picture was taken at historic Chattanooga, Tenn., where the police and firemen stopped on their way to the New Orleans meeting. When in Chattanooga, Sylvest and his party had an opportunity to view the magnificent scenery around that city. He repeated this stone breaking act, and performed other notable strength stunts in front of the hotel at New Orleans.

Modern Fire Alarm Signalling

(*Continued from page* 1204)

are made of a special non-corrosive metal which insures a practical closing of the electrical circuit when the clips come into position.

The machine is driven by an electrical magnet run by the master clock and each impulse from the master clock advances the disks one tooth. When the two pins are in a direct line with each turn they press the contacts down, which operates the relay, which in turn operates the signal apparatus.

When the signal duration desired is the same on all circuits only one signal device for timing is used. If, however, one of the circuits control outside gongs, whistle or other device, two timing devices are needed. The contact duration is of from ten to twenty seconds. These instrument cabinets are therefore made up with either one or two signal timing devices.

The timing devices are of the clock escapement type and are adjustable from ten to twenty seconds signal duration. They close the master relay immediately after the minute impulse goes by, thereby avoiding the throwing of the master relay in circuit while the clock master relay is operating the time stamps, etc. The use of this system for transmitting signals to engine houses is not recommended but it can be used to give a warning signal to the operator to send out signals to the various companies, etc.

Time Switches and Time Relays

In the operation of horns and whistles as well as continuous ringing gongs, some means must be used to operate them

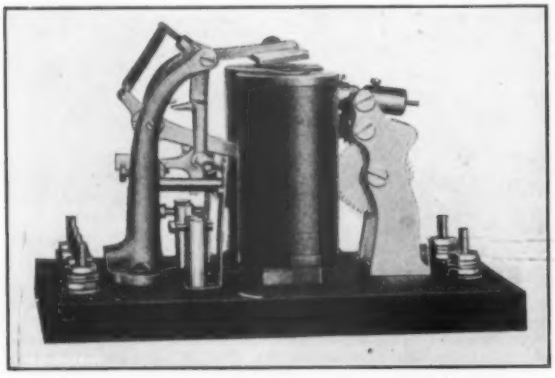


Fig. 41—Uniform Time Relay.

for a predetermined length of time and usually either a time switch or uniform time relay is used for this purpose. In the above mentioned apparatus used on a main line fire alarm circuit, these switches and relays find their greatest usefulness.

It is generally known that if you insert an ordinary type relay in a series loop or fire alarm circuit when the circuit is opened the relay will then operate. It will operate as long as the circuit remains open and all of the apparatus controlled by the relay will be in service. This would be very troublesome in a residential district at a late hour at night and it might also give reason to criticize the man responsible for the installation.

The time switch or uniform time relay can safely be installed in the fire alarm circuit. When the switch or relay is operated it will close the local circuit for a predetermined length of time and then it will restore itself and cut out the local apparatus so as to be ready for the next operation.

This apparatus is useful for operating traffic signals and it can be installed outside of an engine house. It can be operafed from the watchstand in the station or in the case of a small department where all apparatus responds on the first alarm, it can be installed directly in the alarm circuit itself. They are also used in connection with the operation of an automatic light switch by means of which the lights are thrown on, on the first blow of the gong, and automatically put out by this mechanism at the end of a three minute period or whatever time is desired.

In figure No. 40 a time switch such as is used for operating the traffic sirens and gongs is shown. It is possible to install any type wheel that is desired such as steady, intermittent, or quick signal blows and the switch may be timed by means of a fan governor which is adjustable for rapid or slow operation. At the end of the time period it will automatically reset itself and be ready for the next operation. These can be mounted in a panel in the engine house and the building and installation of these panels and apparatus installed on them will be fully taken up in article No. 16. In figure No. 41 a uniform time relay is illustrated and it is possible in this view for one to see how it operates the auxiliary contacts, the governor and timing gears, etc. The relay is constructed for quick, positive action, and it will operate on the same voltage as carried on the fire alarm lines.

Installation of Switches and Relays

The time switch can be installed in the engine house or headquarters for central operation, or where it is desired to control it by remote operation, it can be installed on the pole with the traffic siren or bell, etc. It should be attached to a backboard similar to the ones used for the mounting of the fire alarm boxes, and it should be securely screwed or bolted to the pole. It should be preferably mounted above the apparatus it is to operate and the wires should run in rigid iron conduits for protection. It would also be well to ground the case to prevent high voltages from passing through the mechanism. The two control leads or circuit wires should be attached to the two relay posts. The other two or three leads run to the light, bell or siren and one side of the 110 volt supply.

If placed in an engine house or station they should be attached to the wall or placed on a separate panel and controlled by a button which should be placed on the watchman's desk. The wiring is the same regardless of where installed.

The uniform time relay is as a rule installed in the engine house or the central office and it should be placed on a desk or shelf where it will be kept clean. If it is not possible to install it in a clean dry place it should be provided with a glass case to protect it from dust and dirt.

Changing the Time of Relay and Switch

To speed up the operation of either machine move the weights to the center of the shaft making sure that they are evenly balanced on both sides. The screws should be tightened and a test made to see if the timing is correct. To slow up the operation of the machines the weights are moved out from the center of the shaft and if the machine will not run slow enough more of the weights will have to be installed.

Trouble Incurred with Switch and Relay

The troubles experienced with these machines are very few and usually are found among the following:

Machine out of time—runs jerky.	Open coils.
	Broken spring.
Dirty contacts.	Broken contacts.
Signal wheel loose on shaft.	Gummy oil in gearing.
Short circuited coils.	

The remedy for these troubles is obvious and will not be taken up in detail here. A monthly inspection of the clock, program machine, time switch and relay will increase the life of these machines and it will cut down the number of trouble calls.

If a master clock should ever give you serious trouble do not call in a local jeweler to repair it as there are several electrical circuits in the clock of which he is apt to be ignorant of. Look in the telephone book and see if the makers of the clock have a service station near you and get in touch with the service department. If no service department is near you, telegraph the makers the exact trouble and they will be able to give you information to correct it.

The next article will take up Traffic Signal apparatus, including sirens, whistles, gongs, flashlights, controllers, and their remote operation.

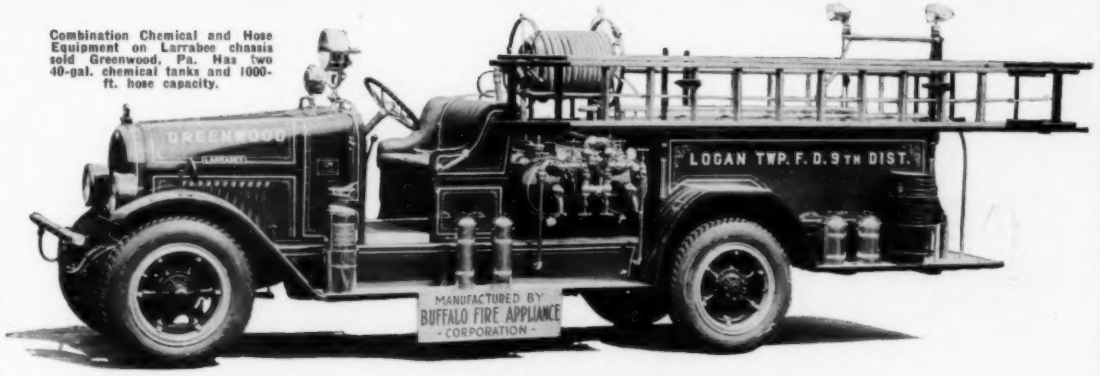
Thompson, Noted Sprinkler Man, Dead

Everett Lang Thompson, chairman of the board of the Automatic Sprinkler Corporation of America, died suddenly on November 4 while attending a quarterly meeting of his company at Hotel Cleveland, Cleveland, Ohio.

He was born in New York, on September 9, 1871, and early in his career became actively engaged in the introduction of the automatic sprinkler in New York city. In 1893 he was appointed general manager of the Manufacturers Automatic Sprinkler Company of Syracuse, N. Y., and in 1897 he became president.

Mr. Thompson was recognized as one of the foremost experts in automatic fire control and in the development of new devices for this branch of the work. He is survived by his widow, a father, a son and two sisters. He was a member of the Masons and of the Lotus Club of New York.

BUFFALO



Combination Chemical and Hose Equipment on Larrabee chassis sold Greenwood, Pa. Has two 40-gal. chemical tanks and 1000-ft. hose capacity.

Small Towns, Suburban and Rural Communities Turn to Buffalo for Their Fire Apparatus

When in the market for new equipment it will pay to bear in mind that we are doing more and more business with small towns, suburban and rural communities that require special built-to-order dependable equipment at a moderate initial cost with freedom from high repair and maintenance charges.

We are especially qualified for a number of reasons to provide apparatus of this type. Buffalo apparatus is designed by experienced fire apparatus engineers in conjunction with local fire officials to meet the particular needs of the town or community making the purchase. Every piece of apparatus is fully guaranteed. A standard commercial chassis is selected for the body equipment required. This provides dependability together with convenient and economical service facilities and reduces the cost of the apparatus.

It is significant that Buffalo apparatus is making-good and making friends wherever placed in service. Buffalo apparatus is built by skilled workmen in a new modern manufacturing plant of the finest materials money can buy. You get high-grade equipment when you order Buffalo apparatus.

Do You Want Complete Information on Our Way of Doing Business?

BUFFALO FIRE APPLIANCE CORP.

Main Office and Factory, Buffalo, N. Y.

BUFFALO

JOHNS-MANVILLE
Asbestos Shingles

City Councils everywhere are voting for FIRESAFE roofs

THE firesafe roof is becoming a public necessity and in a great many cities is demanded by ordinance.

In the meantime, John Citizen is doing some thinking on his own account and is in thousands of cases himself demanding the protection of asbestos on his roof, even in communities where no such law has yet been passed.

Through Asbestos and its allied products
INSULATION
BRAKE LININGS
ROOFINGS
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Branches in all large cities
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COURSE OF INSTRUCTION IN FIRE PROTECTION

As Given at the University of Illinois

SAFEGUARDING THE BUSINESS DISTRICT

By J. J. Conway

Superintendent, The Underwriters' Salvage Corps., Cincinnati, Ohio

THIS twenty-third installment of the University of Illinois Course in Fire Prevention commences the consideration of a very important phase of the fire-fighters work—the protection of the commercial section of the municipality. It is handled by one well qualified to treat the subject:

Must Reach the Employer Also

As you go along you have to bring to your assistance also, by education, those who are employing people and see that they put them in buildings where they are properly safeguarded. You have to bring home to them the responsibility that rests on them for the destruction of any merchandise that may be caused by fire, if they can prevent it, because the laws of supply and demand show that the more I destroy by fire or otherwise, the higher you have to pay for the remaining amount.

The fire loss of the country today has more to do with the high cost of living than any one thing I can point out, so I say to Mr. Factory Owner, or the corporation, or whatever it is, you owe it to us and also to the people, that you put devices in your buildings which will assure the protection of these structures and the people that occupy them. I call to his attention that the first thing a first-class purchasing agent does when he puts in an order is to find out the ability of the factory to deliver at a certain period the goods he orders. If it is subject to destruction by fire, the other fellow is apt to be the loser and he will not place his order. The installation of automatic devices to give an alarm so the fire department can get a quick application, is the whole secret of fire-fighting. By the installation of automatic alarms and automatic switches, by the closing of vertical openings, a building can be made as safe as though only a one story structure. If that can be done, why not do it?

Working Along Lines of Education

Those are the lines we have been working along—education, to get the organizations to see that they have a further duty than the mere making of money, which would cease the minute the factory was destroyed; that nobody cares to place an order with a place apt to go up in flames at any time and that it is an injustice to the public to maintain such a place. Those are the things that brought success to us and might bring success to you if followed in the same line.

Fire fighting is a science; it is an art. It can not be learned from books. When you get on the firing line you are lost, unless you are a man of experience, a man grown up with it.

Use of Salvage in Reducing Losses

You will hear somebody criticize you for having a great water damage. We will say in a six story building you had a fire on the top floor, how else were you going to put it out? Those standing on the outside may think it excess, but you don't. You knew what you were doing under the circumstances. You can give a little more service and a better service and prevent a great deal of that criticism by going along the lines I explained to you.

Years ago when we went to a fire we thought our only duty was to extinguish the flame and return to our house ready for another. Later on we realized by carrying brooms, shovels, and things of that kind we might clean up and prevent the water from doing a further damage by getting it out of the building as soon as possible after the fire. If seventy per cent of your fire waste is coming from water and smoke, that can be cut in two.

A year ago I came back from Los Angeles, where I went to help Chief Scott in the training of his men. He put two complete crews in. That's all right for a residence district where you are only going to use a few coverings. But suppose in the heart of your city you have two on number one, three on number two, four on number four and some fellow wants a cover. He is beaten to it at the first car, he runs to another wagon and is beaten again. If you get one piece of apparatus with one man to bring it to the fire and use whatever spare men you can to use those covers at the fire, you will do a great deal towards cutting down the waste and criticism of excess waste of water. You can not put out fire without water, but you will find you will go into this work and probably be retarded from taking it up by the idea you are saving something for the insurance companies. That's not true.

Salvage Work Throughout the Country

I followed that thing the country over. They started a few salvage corps, twenty-one in the United States, because they saw it could be demonstrated that they were of great value to the public and to the citizens that maintained them. Out of that grew the present fire department. Many Chiefs who are older than I am will remember the time when you would go along the street and see a fire up on the house. The men of the Aetna Insurance Company, or some other insurance concern that had volunteer companies, would put it out if it was insured in their company, but if it was not they would go home and leave it for the other fellow. Soon the people realized there should be protection for all property, whether insured or not. Then came the volunteer fire department, out of which grew the paid fire department. We have grown up now to the most scientific apparatus known. We can go farther and cut down the waste caused by water by carrying a few covers without very many additional men in smaller places and only using those men spared from some other work.

"What Did We Learn from the Fire?"

I want to say one more word. Too many people, including ourselves, are a little bit peeved or distressed if somebody says that something we did yesterday was absolutely wrong. The first thing we want to do is to get that out of our heads. When we come home from a fire call we should sit down, the chief, his assistants, captains and lieutenants, and say, "Boys, we had a fire at such and such a place, what did we learn, what happened over there, if it should happen tomorrow would we do the same thing?" Get them to realize you are not criticizing that fire, but want to find how much education came to you and them from fighting that fire and what you might avoid the next time, if a mistake was made. With that cooperation and discussion among your own men, as to whether there was any way that they could have done better, you will bring education into the department that will be highly valuable.

(*To be continued*)

The "Stover Special" from Chicago to New Orleans

A large number of delegates to the International Fire Chiefs Convention traveled to New Orleans, the convention city, from Chicago and points nearby, by means of the "Stover Special" arranged by Frank F. Stover of the Gamewell Company. The train traveled by way of the Illinois Central and consisted of sleeping cars, lounging, observation and dining cars. Stops were made at several stations along the route to pick up some en route to the convention who could not conveniently leave from Chicago.

Sayville, N. Y., May Have New Apparatus—Sayville, L. I., N. Y., is considering the purchase of new fire apparatus.

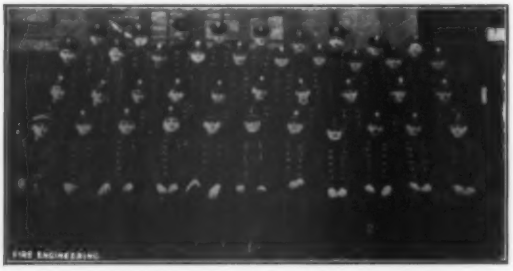
INDUSTRIAL PLANT PROTECTION

Trained Fire Fighters*

The factory fire brigade fills the same place in an industrial plant that the public fire department fills in the community at large. Each of these organizations has its value. In the protection of large industrial plants, the public fire department can never entirely replace the factory fire brigade, whose members are always on the scene when the plant is in operation and the danger from fire is greatest. An outstanding advantage of the private brigade is that it is not subject to the delays of the public fire department, which may be busy at other fires or may be held up by unavoidable traffic conditions. Knowing the plant and processes intimately, its members are also able to judge intelligently the nature of a fire and the manner in which it should be fought to keep the fire and water loss down to a minimum.

The private brigade, because of its particular knowledge of the plant and the layout of the protective system, can always be of great help to the public firemen when they arrive at a fire and take charge. Between the two bodies of fire fighters

The Well Trained Group of the Benjamin Electric Manufacturing Co., Des Plaines, Ill.



Fire Department of Endicott Johnson Corp., Endicott, N. Y.

there should be the fullest co-operation. An understanding should be fostered between the factory fire chief and the town fire chief, so that by mutual help and advice the greatest effectiveness can be obtained at the time of a fire. Just such relations with the public fire department have been established by the Singer Manufacturing Company at their Cairo, Illinois, plant. Recently a joint test was made by sounding an alarm, both units arrived and co-operated in laying hose lines from yard hydrants. Within the next two minutes, three streams were playing on a target which had been provided in the mill yard. Within eight minutes after the alarm, the city pumper had one stream on the imaginary fire; within fifteen minutes, a total of seven streams were in action. These admirable results show the value of organized co-operation, as many poorly managed fires have shown the need of it.

If the fullest effectiveness is to be obtained from any extensive system of private fire protection, men must be competent to maintain and supervise it, and they must be skilled in the handling of the equipment. This comes only from regular training, principally in the actual use of hose streams. At the Canadian Westinghouse plant in Hamilton, Ontario, this ability has been developed to a very high degree. At tests last summer, a team of fifteen men from the fire brigade pulled a hose reel one hundred yards, attached hose to hydrant and reeled off two hundred feet, attached a nozzle, and turned on the water, all in 26 3/5 seconds. It is apparent that these men are ready to act with little delay when fire comes.

In Factory Mutual mills throughout the country there are well-trained private fire brigades similar to the representative few mentioned here. These brigades have proved their value not only in actual fire fighting, but also in the day-by-day work of preventing fires and eliminating hazards. They have proved themselves essential in the protection of valuable industrial properties.

*Reprinted from Factory Mutual Record.

THE DUTIES OF A FIRE CHIEF.

As Seen by a C. & O. Railway Fire Chief at Their Covington, Ky., Shops

By EDWARD FIELDING*

Fire, the terrible menace that has ruined some of our most beautiful cities, must come to an end.

Organization is the only means we have to end this destructive menace. This organization must consist of a judicial body of men issuing rules and laws for the officers to carry out.

The Fire Marshal, who is the head of the officers in the shops, must see that his men are drilled properly so that they may have plenty of practice in the use of instruments necessary to fight fire, and he must choose men who are capable and worthy fire fighters. The Chief must never be a shirker or a man who is indifferent toward duty, but rather a man who is always willing to lend a helping hand when it is needed.

Fire brigades should have drills at least once a week. They should know the fire call just as the soldier understands the sounds of the bugle. When the men of the brigade hear the fire alarm, they should drop everything at the signal of distress and answer the call Each man must know his duties. This is the most important of all in fighting fires: Know what to do and how to do it.

Fire prevention must be practiced and taught in all our shops and should be carried into our homes as well. Fire is caused usually by a careless act on someone's part.

Prevention of fires in our shops can be accomplished by our employes if they will only be careful and think twice before doing anything that may cause a lot of trouble and regret afterwards. Let our fire marshals ask the men in the shops not to throw oily waste, old papers and other objects that might cause a fire on the floors, but instead put such trash as this in the metal receptacles that are provided by the company for this purpose. If everyone were to follow this rule it is safe to say that there would be less fires, but if it is not followed, the chances are that if a fire occurs, someone may be seriously injured or perhaps killed.

Therefore the best thing to do is to play safety first and take no chances, and in this way we can go about our work with more ease, with everybody practicing the rules laid down by the judicial body of the organization of fire prevention.

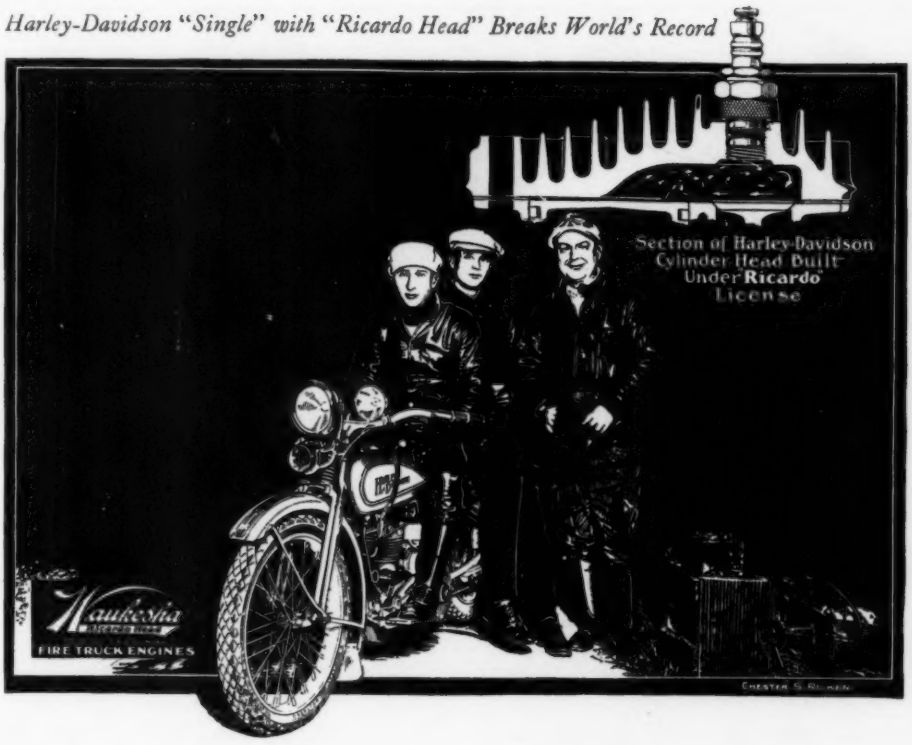
The Fire Marshal should always see that all his fire fighting equipment is in first class condition. Above all, see that hose and connections, extinguishers, and fire plugs are ready for instant use. If one of these, or all, are not in first class condition, replacement should be made at once with new material so that we can be sure at all times of protection.

Fire prevention would not be so necessary if everyone was careful as he should be. Let us be prepared at all times and have our necessary equipment of hose, extinguishers and axes.

Let each shop be equipped with the necessary number of metal trash receptacles, and let our Marshals inspect every nook and corner of the shops and whenever there is the slightest possibility of fire breaking out, or if anything is wrong, let him report it and the defect will be fixed. If the Chief and his associates do their part, there will be a much slighter chance of fire breaking out.—*Railway Fire Protection Journal.*

Maytown, Pa., Dedicates New Fire Station—The new fire station erected in Maytown, Pa., has been officially dedicated.

Harley-Davidson "Single" with "Ricardo Head" Breaks World's Record



Engines with Power

For over three years all Waukesha engines have had "Ricardo Heads". They develop more power in proportion to their size and run cooler than any other "Ell" head engine. That is why they have always passed Underwriter's Twelve Hour Tests with ease. Four six cylinder models are available, suitable for capacities of 250 to 750 gallons per minute.

Use of a "Ricardo Head" on the above motorcycle during a seven day non-stop reliability run under American Motorcycle Association Sanction proved three things which characterize all Waukesha "Ricardo Head" engines: **Power—Economy—Cool Running.** *The "Single" Harley-Davidson is so powerful that a Ford to equal it in performance would have to develop 65 H.P.—in economy it averaged* **124.8 miles per gallon** *for seven days and although air cooled never got hot on this non-stop run. Write for "Ricardo Head" booklet telling more about them.*

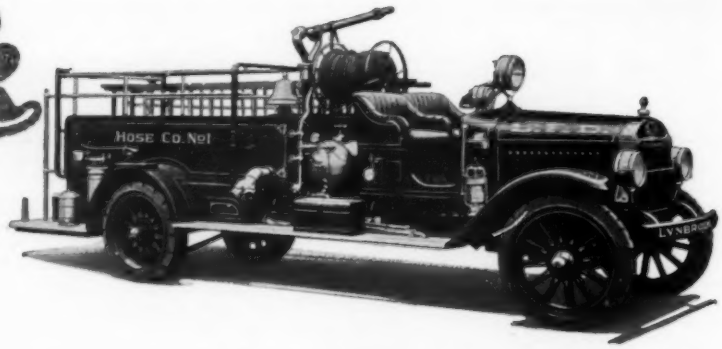
FIRE EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY

Waukesha Wisconsin

Eastern Sales Office Aeolian Building, 33 W. 42nd Street New York City

Mack



delivers

its fourth unit to *Lynbrook, L. I.*

SIX years ago the citizens of Lynbrook purchased a Mack 300 gallon pumping engine. In 1923 they added two more pieces—a 500 gallon pumper and a city service hook and ladder unit.

Now the citizens of Lynbrook have made a fourth protection investment—a Mack AB combination chemical and hose car with extra large hose body and deck pipe.

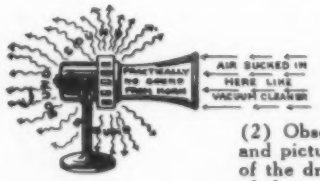
The full line of Mack Fire Apparatus includes motors of either 4 or 6 cylinders and pumping engines with capacities ranging from 350 gallons to 1000 gallons per minute. In other words Mack equipment meets the needs of small communities as well as the largest metropolitan fire departments. Send for complete information.

MACK TRUCKS, INC.
INTERNATIONAL MOTOR COMPANY
25 Broadway New York City

One hundred and six direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION," "MACK MOTOR TRUCK COMPANY," or "MACK TRUCKS OF CANADA, LTD."

WHY SIRACODE IS THE SEARCHLIGHT OF SOUND!

COPYRIGHT



A Siren is Pictured Here

(1) Note that the so called "Horn" merely serves as an intake for air, emitting practically no sound! For this reason many manufacturers omit it completely on certain models. As a matter of fact it is more of a detriment than an asset.

(2) Observe how the sound is ejected through a number of port holes in all directions, and picture, if you can, what a large percentage of it is forced backward into the ears of the driver, and over the road already travelled, this increasing greatly with the speed of the vehicle! Do you wonder why they don't clear the way ahead?

Now Study The Construction of a Siracode

(1) Note that the rotor and stator are Parabolic, causing the sound waves to be forcefully projected forward in the line of travel where they are wanted and needed.

(2) Observe the scientifically shaped, and correctly proportioned deflector, which also greatly intensifies the sound.

(3) The specially constructed motors used for SIRACODE consume about one third the amperage of a siren of similar volume, in short.

SIREN=
LAMP POST

SIRACODE
SEARCHLIGHT

So Why Put a Lamp Post on Your Car?

SIRACODE SIGNAL CORPORATION

Formerly Heath Engineering Laboratories, 354 Pine St., San Francisco, Calif.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

PRECAUTIONS IN BLASTING WOODS DURING THE DRY WEATHER SEASON

Proper Method of Making a "Spitter," and the Care Incidental to Its Use—Methods to be Observed in Blasting Woods

By R. E. MURPHY, Explosive Expert.*

FOR many years dynamite has proved itself an efficient agent in controlling prairie and forest fires. By the use of dynamite a trench can be quickly blasted in advance of the fire and check the progress of the flames. Not only does the trench check the progress of the fire, but the explosion will extinguish the flames within eight to fifteen feet of the line of the trench just as a draught blows out a candle. Every year the U. S. Forest Service uses large quantities of explosives for trenching and blowing down snags in combating forest fires.

It is to the interest of every one to exercise every precaution for the prevention of fires. Forest fires destroy valuable timber, costly logging equipment, railroads and other property. They convert a beautiful forest into a blackened desolate waste to say nothing of the inconvenience caused by smoke to thousands of people living far from the scene of the fire.

While forest fires caused by the improper use of explosives are rare, every precaution should be taken to prevent their occurrence.

There is a right way and wrong way to "spit" or light a fuse. The right way is to split the free end of the fuse to be lighted, exposing the powder train, and the fire should be applied to this split end. Some blasters cut into the fuse ten or fifteen inches from the free end exposing the powder train and light the fuse at this point. A fuse lighted in this manner burns both ways, toward the powder charge and away from the powder charge toward the free end of the fuse. The distance from the point where the fuse is lighted to the free end of the fuse is generally much shorter than the distance from the point lighted to the powder charge, and consequently the flame will spit out of the free end and some time before the fire traveling in the opposite direction fires the cap and explodes the powder charge. The flame from the fuse is exceedingly hot and will readily ignite any combustible material that may be near. A fire started in this manner is often extinguished when the powder charge explodes, but if the flames have gained sufficient headway before the explosion occurs a serious fire may result.

In blasting stumps, the blaster will usually load several stumps and light all of the fuses just before noon or before quitting time in the evening. Should the spit from the free end of the fuse start a fire, the blaster cannot safely return to fight the fire until the last charge explodes and by that time the fire may be beyond his control. When lighting a number of fuses the blaster sometimes uses what is known as a "spitter," that is a short piece of fuse that has been notched with a knife at intervals of about two inches for its entire length. When the end of this "spitter" has been lighted the blaster holds the first notch over the split end of the fuse running to the powder charge. When the flame reaches the notch the fire spits into the split end of the fuse igniting the powder train. The blaster goes to the next stump and repeats the operation with the second notch and continues the operation until all the fuses are lighted. When the last fuse is lighted the "spitter" is still burning and if it is dropped carelessly a fire will almost surely result if the ground and underbrush are dry.

In dry weather a miner's carbide lamp is preferable to the "spitter" described.

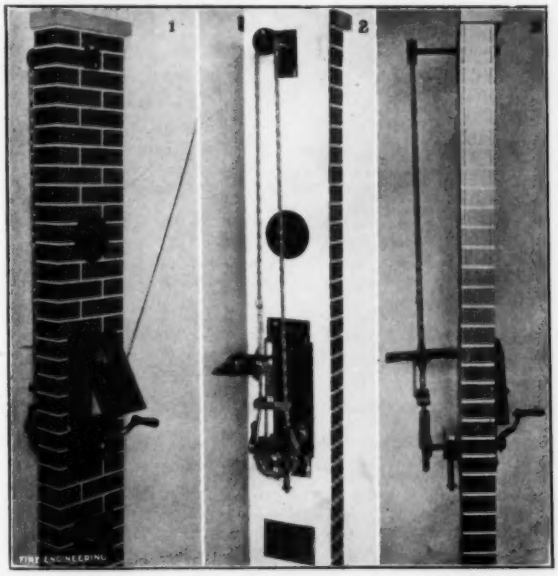
When the fuse and cap method is employed for blasting in the woods during dry weather, all combustible material should be cleared from around the hole before the fuse is lighted and the blaster should take all possible precautions in lighting his fuse in order to avoid setting fire to the dry moss and underbrush. By substituting electric blasting caps for the ordinary fuse and caps all danger of fire from the spit of the fuse or the "spitter" can be eliminated and all forests and logging operations more completely safeguarded. During the summer season many of the large logging operators of Oregon use the electric blasting method entirely for choker hole shooting and are convinced that the adoption of this method has greatly reduced the fire hazard.

*E. I. du Pont de Nemours & Co.

New Chimney Cleaner

A chimney cleaner which is operated by a long sprocket chain is being marketed under the name of "Anko" by a Wisconsin company.

The machine consists of a handle which projects through the chimney at a point above the clean-out door and below the flue pipe. To the handle is connected a sprocket wheel. At some point slightly below the top of the chimney there is placed another wheel. The two wheels are connected by a sprocket chain to which are attached brushes. In operation, the handle is turned, and the brushes travel up on one side of the chimney, over the top wheel, and down on the other side of the chimney thus cleaning all four sides.



Details of Cleaner Design.

1.—Exterior view of front of chimney showing the draft regulator door, and the handle for operating the brushes. 2.—Inside of chimney showing the sprockets and chain with the brush attached. 3.—Side sectional view showing both the interior and exterior chimney equipment. From these illustrations can be obtained an idea of the operation of the cleaner.

A sort of draft regulator door is installed above the crank handle. The manufacturers recommend that this door be kept open at all times to permit a current of air to circulate to prevent the formation of creosote scale.

Chemical Apparatus Delivered to Sunbury, Pa.

The Northern Pump Company has delivered a special job to the Washington Fire Company of Sunbury, Pa. The equipment consists of a double copper tank, combination chemical and hose. There is sufficient space underneath the driver's seat for the installation of a pumper at a future date. The apparatus is mounted on a bus chassis of the International Harvester Company, and it is equipped with four-wheel air brakes. It has a 6-B Continental motor. The chemical tanks have a capacity of forty gallons and the hose body can hold 2,000 feet of hose.

Fire Fighting with Foam Makes Headway

(*Continued from page* 1198)

The tanks and buildings at pipe line stations can be effectively protected by standard foam systems.

Protecting the Refinery

We have now arrived at the refinery and there find many points of hazard capable of safeguarding by this modern knight of protection. The process or run down tanks, stills, condensers tail house and agitators present inherent hazards that foam alone can adequately overcome. This also is true of the tank farm that always is a division of a refinery. In most cases there will be rail connections and this means tank cars and loading racks. Many fires are caused by static electricity during filling operations; if these fires are to be so controlled as to prevent rapid spread, it follows that positive means of fire extinguishment must be readily available. If a foam line with a discharge connection is close and ready for use by the attendants on the racks, the fire can be quickly extinguished.

Problem of the Bulk Marketing Station

But the big field of foam application in the petroleum industry, is the bulk marketing stations. According to a report of the American Petroleum Institute, there are approximately 12,000 such stations in the United States. In the past the oil companies experienced little difficulty in establishing these plants, today, however, it is a different story. One big reason why municipal officials object to the establishment of these marketing stations within the city or town limits, is because they know how difficult an oil fire is to extinguish, and realize the lack of fire department equipment suited for this special purpose. In the large majority of cases, however, the authorities will issue a permit if they are assured that an efficient foam system is to be installed. Every city and town of any size in the country has its marketing station so that the extent of this problem is apparent.

Preventing Fires in Oil Terminals

Along our coasts and in or near the harbors of our large seaports, there are oil terminals; these may be in connection with refineries and serving as a means of receiving the crude oil by tanker from Mexico or the mid-continent fields. Or they may be used simply as a means of supplying land storage tanks or shipment by tanker or barge from land storage. The bunkering stations for fuel oil burning vessels, and gasoline fueling stations are other types of marine terminals found in or near large harbors. Such terminals are found in Boston, Providence, New York, Baltimore, Norfolk, Charleston, Savannah and Brunswick, Georgia; Jacksonville and Tampa, Florida; Mobile, Alabama; New Orleans, La.; Port Arthur, Texas, and at several points along the Pacific Coast. The importance of preventing fire at these terminals is very real, as oil escaping and igniting is liable to endanger waterfront properties and shipping if wind and tide conditions are favorable. As many of these harbors are not protected by fire boats, and even fire boats are of the greatest value if they lack the proper equipment to combat oil fires, the management of these terminals must depend mainly upon their own resources if fire breaks out. Such fires must be controlled in their incipiency if escape of oil onto the water is to be prevented. Foam, again, is the only agency of value in effecting control. The Baltimore fire department has equipped at least one of their fire boats with foam equipment; its value has already been demonstrated in connection with an oil fire on the harbor surface.

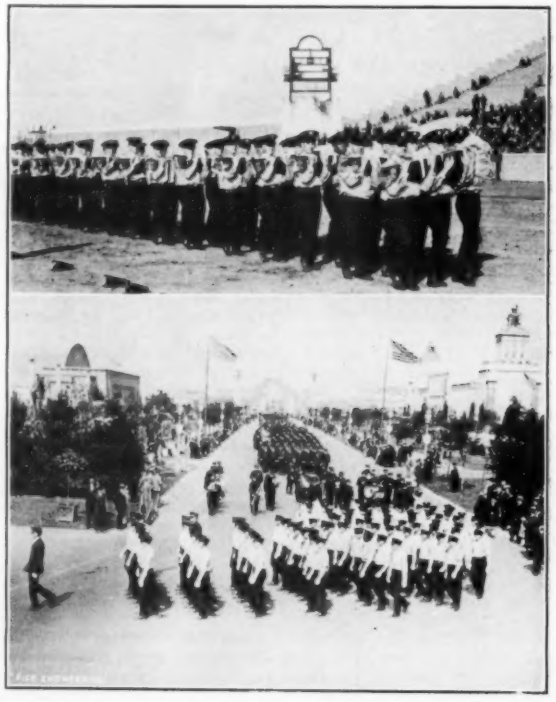
Until recently, however, foam protection was beyond the reach of many plant owners, because of the item of cost and the absence of developed application equipment suited to their special needs. This was especially true in the case of petroleum marketing stations, and many marine terminals.

A Portable Foam Protection Equipment

At this stage there appeared a new device destined to eliminate these deficiencies and meet the demands of these special needs. Indeed, its advent in foam protection has been of great importance; it makes foam protection of major proportion possible where formerly protection of only first aid extent could be secured; but what is of most importance is the fact, that there is now available a powerful and effective weapon in the form of a piece of portable equipment that can be carried on the apparatus for combatting oil fires. In this connection it seems reasonable to predict a marked change in fire department procedure so far as chemical equipment is concerned, as foam is not only effective and efficient for oil fires but is good for general use as well, as indicated by Underwriters Laboratories' listing of this material. At present the usual soda and acid chemical equipment carried on fire apparatus can be more quickly placed in operation, a very important feature, but in this respect engineering can be relied upon to find a way to adequately adapt the generator to fire department requirements.

Use of Foam does not Involve Water Damage

A feature of foam as an extinguishing agent, which immediately appeals to fire chiefs and fire protection engineers is the fact that its use does not involve water damage. Several progressive fire chiefs now contemplate installing foam generators as a part of their chemical equipment. These chiefs have in their respective cities numerous oil storage plants and manufacturing plants containing special hazards susceptible of protection by foam only; Baltimore is a case in point The efficiency of the portable foam generator has been demonstrated by large scale tests at fire chiefs conventions and at recent conventions and gatherings of N. F. P. A. members. Undoubtedly the generator forms the only answer in terms of effective fire protection to the chief of any city confronted with the problem resulting from the presence of oil storage tanks in congested localities. In some cities tentative plans have been suggested whereby the owners of oil storage tanks would be required to install permanently connected piping extending up the side of the tank and discharging to tank interior, the inlet end or point of connection with generator discharge piping being outside the dike. The generators and primary supply of foam powder would be carried on the fire department apparatus and secondary storages of foam powder would be located at the oil storage plants, thus insuring an adequate supply in any emergency. This constructive plan again indicates and emphasizes the value of the generator.



Pennsylvania Firemen Parade at Sesqui-Centennial Grounds

Upper—Firemen of Philadelphia, Pa., going through the evolutions of a first aid drill at the Sesqui-Centennial Stadium. This was one of the features of the convention of the International Fire Association of Fire Fighters. A large parade in which various Pennsylvania fire companies appeared, was one of the main features of the convention. The lower photograph shows the firemen parading through the grounds of the Sesqui-Centennial.

W. Caldwell, N. J., Siren Purchase Delayed—The purchase of a fire alarm siren for West Caldwell, N. J., may be delayed until the making up of the budget for the following year.

Rockland, Me., to Install Siren—A siren is to be installed in Rockland, Me. Since the failure of the bell system to call out all the call men in a recent large fire, the officials saw the wisdom of installing a new means of sounding the fire alarm.

PIRSCH FIRE APPARATUS

"PIRSCH--SPECIAL"

"Pirsch" Special 500 Gal. Pumper Delivered to Algonquin, Ill.

Backed by our 70 years manufacturing experience—Thirty of which were devoted exclusively to the building of Fire Apparatus.

PETER PIRSCH & SONS CO.

KENOSHA, WISC.

11 Moore St., New York, N. Y.

Q. What is ANALOX?

A. A Paint.

Q. How does it differ from other paints?

A. It is more durable. It costs less. It is more economical to apply. It dries more quickly.

Q. Is it anything more than a paint?

A. Yes. It is a fire retardant.

Q. What is the "ANALOX PROCESS"?

A. A process for protecting wood shingle roofs against fire brands.

Q. How effective is it?

A. Tested by the Engineering Laboratory of Columbia University the roof treated with the "ANALOX PROCESS" withstood successfully the famous "burning brand test" which is used by the Laboratory of the National Board of Fire Underwriters.

Q. What is the bearing of this on fire hazards in American Cities?

A. Wood shingle roofs impose a terrifying "conflagration hazard" on practically all our large cities. The existing risk from wood shingles can be done away with at relatively small cost by the "ANALOX PROCESS".

Q. How should the matter be handled in your city?

A. A local contracting company should be formed to apply the "ANALOX PROCESS" under license from us. This process should be made compulsory for all wood shingle roofs in congested districts.

For particulars write to:

THE ANALOX PAINT and COLOR CORP.

83 Chambers Street New York City

The Los Angeles Fire Dept. is 100% B & M equipped.

Hundreds of Cities over the country using our sirens.

B and M

We gladly send B & M Sirens to cities on approval without expense.

SIREN

"It pierces the air"

You Will Eventually Buy B & M's

Fire officials find the powerful B & M fire apparatus Siren to be ideal to meet modern street traffic conditions. Electrically-driven Sirens cannot be operated successfully by storage batteries in hard and continuous service. Hand-rotated Sirens are both exhausting and dangerous to the operator. Therefore, the mechanically-driven B & M Siren with its piercing screech that can be heard for miles is the ideal fire apparatus Siren.

Send for Complete Information

B & M Siren Manufacturing Co.

Lester H. Miles, Proprietor

931 So. Main St. Los Angeles, Calif.

BADGES

of Every Description

QUALITY GUARANTEED

Right Prices
Prompt Deliveries

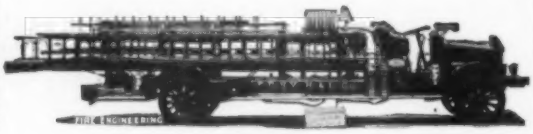
We Also Make the Durable "ROSS" HELMET

Our latest catalogue and price list will gladly be sent on request.

EVERSON-ROSS CO., INC.

88 Chambers St., New York

Light and Heavy



City Service

Hook & Ladder Apparatus

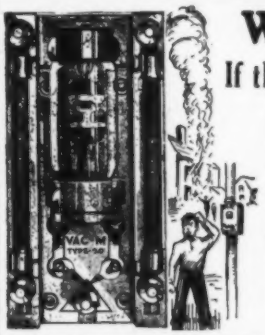
We build any type of Apparatus required and can furnish High Grade Ladders in either Trussed or Solid Side types. Each Ladder is carefully made, ironed, and equipped for safety, strength and service.

Up-to-date FIRE FIGHTING APPLIANCES.

Write us when interested.

Combination Ladder Co., Inc.

381 Fountain Street Providence, R. I.



What Happens!

If the Alarm is Not Received?

Your men and apparatus are worthless if the alarm does not come in. The safety of your city depends upon the never-failing operation of your alarm system.

Then why not make sure you always get the alarm by protecting your delicate alarm instruments with VAC-M Arresters against the dangers of lightning and short circuits?

Every alarm system should be equipped with VAC-M Arresters. Used by chiefs all over the country.

Full Details on Request

THE NATIONAL ELECTRIC SPECIALTY COMPANY

TOLEDO .... OHIO.

When Fighting Fire

Across Railroad Tracks

Protect Your Hose Lines and Apparatus

with our

Fire Department Emergency Railroad Train Stops

Burn Red for Twenty Minutes

12 train stop lights for $5.00. In neat box for apparatus.

CENTRAL RAILWAY SIGNAL COMPANY
NEEDHAM HEIGHTS, MASS.

PROPOSED IMPROVEMENTS

Welcome, Martin Co., Minn.—Contemplating the purchase of fire engine for use in village as well as in rural sections. Village Recorder A. H. Martens.

Hardy, Nuckolls Co., Nebr.—Funds being raised by the fire department for the purchase of a chemical car.

Bloomington, Franklin Co., Nebr.—Volunteer Fire Department to raise funds for the purchase of a chemical car.

Novato, Marion Co., Calif.—Novato township making plans for the forming of a new fire department and purchasing fire equipment.

Church Hill, Queen Annes Co., Md.—Firemen planning to purchase new fire engine.

Saginaw, Saginaw Co., Mich.—Chief Kruezberger to request an appropriation for the purchase of fire equipment to combat fires in the Saginaw oil fields.

St. Cloud, Stearns Co., Minn.—City Commission to expend $50,000 for the purchase of fire department apparatus in order to lower insurance rates.

Penn Valley, (Mail Morrisville), Bucks Co., Penn.—Agitating for the organization of a volunteer fire company and the purchase of equipment.

Rochester, Beaver Co., Penn.—Rochester Township Fire Department contemplating the purchase of a fire engine.

Spring Mills, Center Co., Penn.—Considering the purchase of about 50 new winter uniforms in the near future.

Gloversville, Fulton Co., N. Y.—National Board of Fire Underwriters recommended that a hose wagon be placed in reserve equipped with 1,000 feet of 3-inch hose and turret pipe.

Maricopa, Kern Co., Cal.—Plans being made for installation of additional fire alarm boxes and the general improvement of the fire alarm system here.

Park Ridge, Cook Co., Ill.—John R. Anderson, Mayor urging the purchase of an aerial ladder truck.

Pascoag, Providence Co., R. I.—Fire department raising funds for the purchase of a ladder truck for Hose Company No. 2.

Warwick, Kent Co., R. I.—The Bayside Volunteer Fire Company raising funds for the purchase of a new fire engine.

South Norfolk, (Mail Norfolk) Norfolk Co., Va.—Volunteer Fire Department planning to purchase a new fire engine. Funds on hand.

Long Beach, Pacific Co., Wash.—Ordinance providing for $10,000 for the purchase of equipment for the fire department passed its first reading. Bond issue to be voted upon in the near future.

Jackson, Hinds Co., Miss.—City voted in favor of a $40,000 bond issue for erection of 2 fire stations and the purchase of fire apapratus.

Rolette, Rolette Co., N. Dak.—To purchase equipment for fire department.

St. Charles, St. Charles Co., Mo.—City Council committee on fire protection is planning the installation of a new fire alarm system for this city.

Havre, Hill Co., Mont.—Specifications for the fire alarm system as designed by City Engineer Sandquist was approved.

South River, Middlesex Co., N. J.—Plans have been completed for the erection of a new fire house to cost $15,000.

Union, Union Co., N. J.—Union Fire Commissioners considering the purchase of fire equipment. Either election will be called to vote on a bond issue or a special appropriation will be made.

Lorain, Lorain Co., Ohio.—City's fire alarm system was recently examined by City Electrician Charles Bogard and found to be defective. Plans to be made for the improvement of the system. New wires and new boxes to be installed.

Topeka, Shawnee Co., Kansas.—At recent election city voted in favor of a $200,000 bond issue for erection of fire stations in the city.

Minot, Ward Co., N. Dak.—At election held Nov. 2, city voted in favor of a $16,000 bond issue for the purchase of an aerial ladder truck for the fire department. George A. Reishus, City Clerk.

Tarintum, Allegheny Co., Penn.—City voted in favor of a $35,000 bond issue for the purchase of new apparatus and erection of 2 new stations.

Deposit, Broome Co., N. Y.—At recent meeting of the Central Fire Company it was voted to purchase a hook and ladder truck. Funds being raised for this purpose.

(West) Endicott, Broome Co., N. Y.—At recent election city voted against the erection of a fire station here.

Ripon, San Joaquin Co., Cal.—Campaign under way to raise funds for the purchase of fire hose for the fire department.

Laguna Beach, Orange Co., Cal.—Funds being raised for the purchase of fire hose for the Laguna Beach Volunteer Fire Company. Plans are being made for equiping and housing the fire department.

Roseland, Essex Co., N. J.—Borough Council passed ordinance for the purchase of a piece of apparatus to cost $12,500 for the fire department.

Largo, Pinellas Co., Fla.—New fire station to be constructed here. A fire siren is to be purchased.

Anita, Cass Co., Iowa.—Volunteer fire department raised funds for the purchase of fire engine and other equipment.

FOR SALE

Fire Apparatus

One Seagrave, 4 Wheel Tractor, City Service Hook and Ladder Truck, equipped with 1 50 ft. Extension Ladder and other portable Ladders, including miscellaneous equipment. Address Box: 129, % FIRE ENGINEERING, 225 W. 34th St., N. Y. C.
11-25, 10, 25.

Fire Alarm Engineer Open for Connection as Supt. or Asst. Supt. of Municipal Alarm System.

Have had 8 years of actual engineering experience in this line including construction, installation, operation, maintenance and repair of all types of central offices. Can plan and carry out all kinds of installation and repair work. Desire steady position in some city. Will go anywhere in the United States and establish residence. References furnished in first letter. Address Box 128, % FIRE ENGINEERING, 225 West 34th St., N. Y. C.
11-25

CONVENTION DATES

Jan. 11-13, 1927—ILLINOIS FIREMEN'S ASSOCIATION. 39th Annual Convention, Quincy, Ill. Secretary, Roy W. Alsip, Champaign, Ill.

Jan. 18-20, 1927—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION, 45th Annual Convention, Columbus, Neb. Secretary, H. A. Webbert, Kearney.

Aug. 14-16, 1927—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual convention, Elmira, N. Y. Frank A. Emden, secretary-treasurer, 1200 Lenox Ave., Utica, N. Y.

Sept. 1927—KANSAS STATE FIRE CHIEF'S AND FIREMEN'S ASSOCIATIONS. 11th and 40th Annual Conventions, Kansas City, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Sept. 7-8, 1927—MISSOURI STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Kirksville, Mo. Secretary, District Chief J. T. Lynch, Kansas City, Mo.

Sept. 7-8, 1927—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 2d Annual Convention, Kirksville, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

New York Firemen Urged to Play Safe

In a circular to the members of the uniformed force of the department Fire Chief John Kenlon of New York on November 15 warned the firemen against carelessness and indifference toward their own safety while responding to fires.

The circular was evidently prompted by another death in the line of duty—that of fireman Christopher M. F. Quinn, of Engine Co. 284, in Brooklyn, who was thrown from the apparatus on November 11 while responding to an alarm, and killed from a broken neck.

Quinn was buried on Monday, November 15, with honors accorded a member of the department whose life was sacrificed in the call of duty. The circular issued a few hours after his interment is as follows:

To the Uniformed Force

During the past year five firemen were killed by being thrown from the apparatus while responding to fires. These very deplorable accidents are the result of firemen dressing while the apparatus is proceeding to the fire ground.

It goes without saying we all deplore injury, serious accident, or death occurring to any member of the uniformed force. These accidents are all the more to be regretted when we know they could be avoided by the firemen exercising ordinary care by holding on to the hand rails of the apparatus. Fire duty is inherently dangerous; why increase the danger by carelessness?

JOHN KENLON,
Chief of Department.

A Little Gas Causes $150,000 Fire

A night watchman in a garage at Asbury Park, N. J., attempted to start a car which was affected by the cold weather. He drew a small amount of gasoline from a pet cock in order to prime the motor, and as he worked by lantern light, a few drops of the gasoline fell on the lantern and immediately burst into flame. The blaze spread to a nearby truck, and in an attempt to extinguish the fire, the watchman poured large amounts of water on the burning oil.

After fighting the fire unassisted for some time, the watchman was forced to give it up and to call for aid. By that time the fire had assumed large proportions. The heat from the flames caused some electric wires to fuse and as a result six towns were without lights. The firemen that responded were hampered in their work by falling wires. The trolley cars were soon put out of service and many were forced to walk.

The largest damage was a $100,000 loss suffered by a nearby lumber yard—the loss of the garage was estimated at $6,000.

Department and Other Reports Received

Charleston, S. C.—Annual report of the Board of Fire-Masters for 1025; twenty-two pages, cover and folded table.

Pawtucket, R. I.—Thirty-second annual report of the Board of Public Works; sixty-five pages and cover in which is contained the activities of the water department.

Brockton, Mass.—Annual report of the chief of the fire department and the superintendent of the fire alarm system; seventy-four pages and cover.

Newton, Mass.—Annual report of the chief of fire department; twenty-nine pages and cover.

Norwich, Conn.—Twenty-fifth annual report of the chief of fire department, fire marshal and superintendent of fire alarm telegraph; forty-three pages and cover.

Panama City, Republic of Panama—Annual report of the department of safety in which is included the report of Chief Juan Ant, Guizado. Twenty-three pages and three folded tables which present interesting statistics.

FIRE DEPARTMENT ACTIVITIES

New Fire Station for Toledo, Ohio—A new fire station will be erected in Toledo, Ohio.

Melbourne, Ia., Farmers Purchase Apparatus—A community organization has been formed among the farmers of Melbourne, Ia., for the purchase of fire apparatus.

Organized Labor Interested in Los Angeles, Cal.—A campaign is being made by the forces of organized labor to improve the fire facilities of Los Angeles, Cal.

Erection of Pittsburgh, Pa., Station Delayed—The city council delayed the final action on the purchase of a site for the erection of a new fire station in Pittsburgh, Pa.

Iron Mountain, Mich., Installs Siren—An electric fire siren has been installed in the belfry at the city hall of Iron Mountain, Mich.

Linwood, N. J., Chief Dines—Chief John Pedrick was tendered a banquet by the members of the Linwood, N. J., fire department.

New Fire House for Lebanon, Pa.—The Washington Fire Company of Lebanon, Pa., have started construction for their new fire station.

Colorado Springs Firemen Want Pay Increase—The firemen of Colorado Springs, Col., have asked for a blanket increase of $25 a month in the salaries of the members from the captains down to the third grade firemen.

New Assistant Chiefs of San Francisco Named—Battalion Chiefs Charles J. Brennan and Martin J. Kearns of San Francisco, Cal., have been promoted to assistants to Chief Thomas J. Murphy. This will give the chief four assistants.

Ocean Extinguishes Oginquit, Me., Fire—The spray thrown up from the incoming surf at Ogunquit, Me., wetted a number of the nearby studios and prevented the spread of a fire that started in one of the studios from an overheated stove.

Stoneham, Mass., Votes for Two-Platoon System—At the November election, Stoneham, Mass., voted for the adoption of the two-platoon system. The new system will probably go into effect on February 1, 1927.

New Assistant Chief for New York City—Patrick Walsh, deputy chief of the New York City fire department and assigned to the Bureau of Fire Prevention has been designated as Assistant Chief of Department.

Havre, Mont., to Install Gamewell Fire Alarm—A Gamewell fire alarm system will be installed in Havre, Mont. It is expected that a large reduction in insurance rates will follow its installation.

Lisbon, Ia., Purchases Fire Apparatus—Lisbon, Ia., has bought a Chevrolet fire truck equipped by the Boyer Fire Apparatus Company. It is equipped with two 35-gallon chemical tanks.

Glenolden, Pa., Purchases Apparatus—A contract for a pumper and a chemical apparatus has been awarded to the Hahn Motor Truck Company. It is expected that the apparatus will be delivered in time for the New Years day celebration.

Last of Eau Claire, Wis., Horses to Go—The last of the fire horses in Eau Claire, Wis., will soon be retired, as the city has ordered bids for a motor driven ladder truck to replace the horse-driven one in use at present.

Oranges Presented to Pacific Coast Chiefs—Valencia oranges wrapped in special wrappers giving information about Lindsay, Cal., have been presented to the visiting chiefs at the convention of the Pacific Coast fire chiefs at Fresno, Cal.

Quincy, Mass., Department Has Shake Up—One of the biggest shake ups in the history of the Quincy, Mass., fire department has resulted in the resignation of one member, the demotion of one officer and the transferral of nine members.

Pine Bluff, Ark., Station to Be Completed Soon—It is expected that the new fire station being constructed in Pine Bluff, Ark., will be completed about December 1. The building will be completed at an estimated cost of $7,500.

Disastrous Fire Near Sidney, New South Wales—A disastrous brush fire has been raging along the coast near Sidney, New South Wales. Much of the country from Lismore to Port MacQuarrie, a distance of about one hundred miles, was on fire.

Ten Des Moines Firemen Ordered Re-instated—Ten more of the discharged firemen of Des Moines, Ia., have been ordered reinstated by the district judge. The firemen are all ex-service men, and six other firemen's cases are being considered by the courts.

Mobile Apparatus Crashes into Home—When a truck company of Mobile, Ala., attempted to avoid crashing into a trolley car, the ladder truck grazed up against the curb of the sidewalk, climbed it and crashed into a nearby home. Two firemen were injured in the accident.

New York City Steam Fire Engines to be Replaced—All of the steam fire engines in New York city are to be replaced soon, according to Commissioner John J. Dorman. There are eight such engines in use in the boroughs of Brooklyn and Queens and they will be replaced by gasoline pumpers shortly.

Aurora Borealis Causes Many Alarms in Vienna—Austrian peasants about Vienna upon seeing the northern lights of the Aurora Borealis became alarmed and turned in a fire alarm. These alarms commenced coming in from various sections of the city and the bewildered firemen thought that the whole city was on fire.

Danvers Firemen Kept Busy by Bootleggers—The alleged number of alarms received by the firemen of Danvers, Mass., has been explained as the activities of the bootleggers. When the apparatus responds, a crowd gathers, and when the crowd commences to break up they realize that they are thirsty—increased business for the bootleggers results.

Firemen Frolic as House Burns—Several fire companies held a dance at Chepachet, R. I., and watched the glow of a fire in Gloucester, R. I., unable, so they said, to do anything. As the place is outside of their fire district, the firemen could not respond unless they received a request from the stricken owner and no such request was received.

Deluvan, Wis., Firemen Granted an Increase—The firemen of Deluvan, Wis., have been granted an increase in the amount that they receive for answering fire calls. Previously they received one dollar a call but the council granted them an increase of two dollars when it was brought to their attention that the men from nearby places receive five dollars a call.

Apparatus of Wheeling, W. Va., Being Repaired—The fire apparatus of Wheeling, W. Va., is being overhauled preparatory to being put in condition for the rough winter service. Although the machines are being placed in first class condition, Chief McGranahan believes that the city should purchase additional fire apparatus—at least another ladder truck and a pumper.

Junior Department Organized at Willow Lakes, S. D.—A junior fire department has been organized among the members of the Boy Scouts at Willow Lakes, S. D. Chief Doucette believes that this organization will be of great benefit to the boys as well as an aid to the department in the prevention of fires.

Council Bluffs, Ia., Has Highest Loss—According to the house organ of the Hartford Fire Insurance Company, the fire losses of Council Bluffs, Ia., are the highest of any in the United States. The city has been in this class for the past three years and the per capita loss there is $29.67 with Bay City, Mich., second with a per capita loss of $26.58.

Three Babies Burned in Long Island Fire—Three babies were burned to death in a fire caused by a soft coal kitchen fire at Amagansett, L. I. The youngsters were left alone while the mother went to call on a next-door neighbor. When the mother heard cries of fire she rushed to her home but found every means of entrance barred by the flames, and no rescue of the youngsters was possible.

Plane Saved by Airplane Equipment—The latest wrinkle in fire fighting is the extinguishing of flames by means of apparatus carried by an airplane. On a trial spin of a seaplane, the engine backfired and the resulting fire threatened the destruction of the plane. An American aviator who saw the fire and whose plane was equipped with a fire extinguisher, flew alongside and passed the extinguisher to the Italian pilot of the seaplane and the blaze was soon extinguished.

Brookfield, Mass., Apparatus Destroyed by Fire—The firemen of Brookfield, Mass., were forced to sit idly by and watch their entire fire equipment being destroyed by fire when the two story building in which it was housed, was discovered on fire. There were two pieces of fire apparatus and a fire siren with a number of accessories. Upon receipt of the news, Springfield, Mass., sent Brookfield a quantity of hose and a number of extinguishers so that the town would have some fire protection. A pumper was made ready for shipment, should the officials deem it advisable.

Asst. Chief G. L. HOWE, of the Ridgefield Park, New Jersey Fire Department, writes:

"Ship ten Dontfear Smoke and Fume Respirators to complete the dozen. We have two at present that your representative left here and have found them satisfactory."

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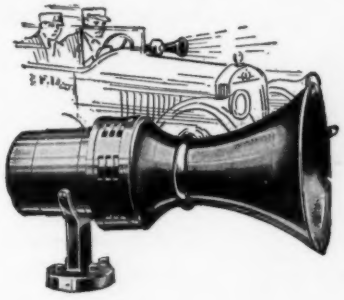

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FIRE BOAT EQUIPMENT

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are in use throughout the country and giving unsurpassed service.

Every fire official should be fully acquainted with Morse equipment and have our catalog and other descriptive literature on file for ready reference whenever considering the purchase of new equipment.

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FIRE ENGINEERING
225 W. 34th St., N. Y. C.

FALSE ALARMS

WARNING NOT USED

A fireman was on his tour of inspection of some of the hazards of the city, and in the course of his examination observed a shack containing explosives on the remote part of an industrial plant, but minus any warning sign.

"Look here," he said to the one who was accompanying him. "This is a very dangerous condition that you have here. Why don't you put up some kind of warning sign?"

"It's dangerous, all right," agreed the man, "and we had a sign like you want for two years, but nothing ever happened so we took the sign down."

MORE ECONOMICAL

The fire rookie had hardly become accustomed to his fire duties when he began to complain to his comrades about the fire station, that the company lacked a fire dog to make the station more homelike. He was always looking for a suitable dog to adopt, but every dog that was worth while had some youngster who thought the world of the animal and refused to part with it.

One of the firemen one day saw him brooding over the problem and he said, "Well, buddy, suppose we collected twenty-five dollars for a dog—I suppose you could get a pretty good dog for that."

"If you left it to me," he replied, "I'd buy twenty-five good one-dollar dogs for that."

MORE ACCURATE

He rushed to the telephone. "Hello! Hello! Oh, operator, give me 252, I've got a fire at the house."

After a pause the excited victim shouted to the operator, "Hello 252? Is this 252? Oh, heck! I beg your pardon, operator, I gave you the number backward, it is 252."

THE DOLLARS COUNT

The novice at a rural fire department was being trained by a representative of the fire apparatus company in the art of operating the new fire engine that was just delivered.

Suddenly in the course of instruction, the rural fireman asked, "What's the charge on this battery?"

"Fifty volts," answered the instructor.

"Well, how much is that in United States dollars?"

PERFECTLY SAFE

The nervous mother was inspecting the college where she was going to register her daughter as a Freshman. Gazing at the romantic old college building she thought of one question that she would like to ask the college official.

"What precautions do you take here against fire?"

"Well, the school has it insured for twice its value," replied the obliging college official.

HE WAS TOO COOL

A few minutes after an alarm of fire was given in a hotel, one of the guests joined the group that were watching the firemen try to extinguish the fire. The guest could not seem to understand the excitement of the crowd.

"There is nothing to be excited about," he remarked to one of the watchers. "I took my time about dressing, lighted a cigarette, didn't like the knot in my tie, and so I tied it over—that's how cool I was."

"That's fine," replied the watcher. "But why didn't you put on your trousers?"

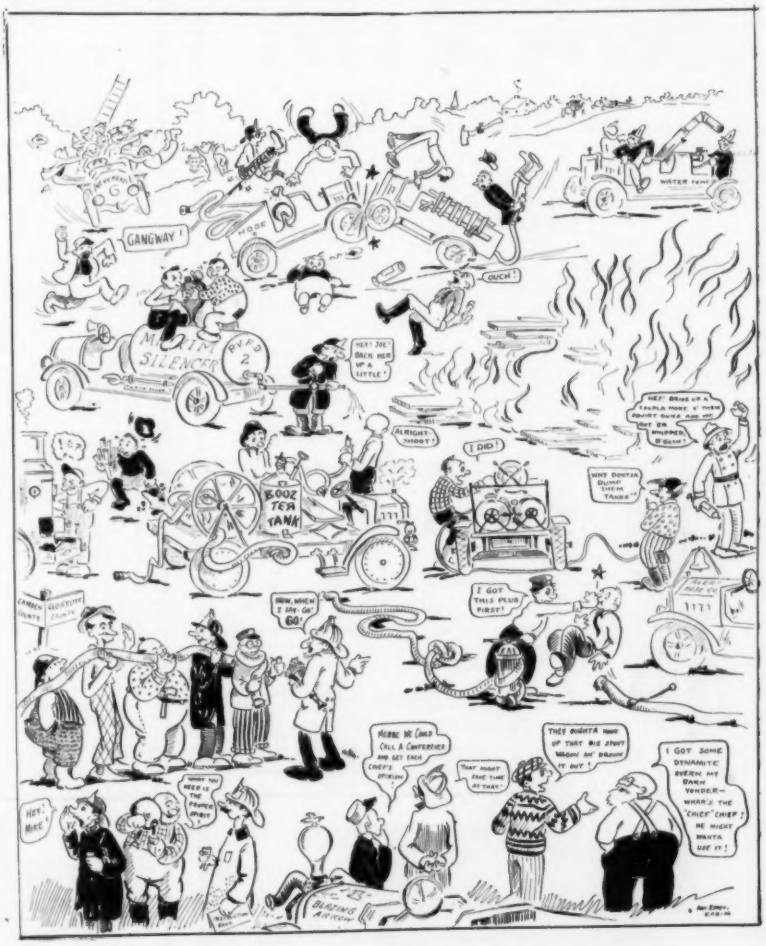
ANOTHER NAME FOR IT

"I heard that the captain called you a blockhead. Is that right?" asked one fireman of another.

"No sir, he didn't make it that strong. We were out going through some of the evolutions in the yard, and he just said to me, 'Pull down your cap, here comes a woodpecker."

Jack: My heart is on fire with love for you.

Jill: Well, don't put yourself out.



The Moment When Too Many Firemen are Sufficient

This is the day of expansion. With the growth of each community or real estate development there is also the formation of a fire company under the able command of an aggressive fire chief. Each department head is ambitious and seeks to bring honors and citations to himself and his organization. Imagine the chaos that must exist when twenty-five of such ambitious companies respond to a fire—each seeking to obtain the lead in the conquering of the blaze—each striving for a place in the limelight.

Possibly the above sketch may be a little far fetched but our artist, "Art" Espey, encouraged by a news report that at a fire in a lumber yard in Paulsboro, N. J., twenty-five fire companies with four hundred men responded, has illustrated what he believed might possibly result.

The Firemen's Association has taken steps to cut down the response of apparatus and in some way control the companies responding, so that the firemen would not be hampered by too much apparatus or enthusiastic helpers.

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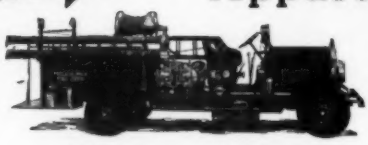

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This page is here to make it convenient for you to get complete specifications and prices from the leading manufacturers of the country of fire protection equipment and supplies of all kinds without cost to you and without any obligations.

To get this information just run down the list below and mail the coupon to us filled out with name and address and with the numbers that indicate the equipment in which you are particularly interested.

We will then notify reliable manufacturers of your interest in such equipment and request that they send you complete information. They will gladly do this and it will be a pleasure for us to help you in this way. So go to it! Help yourself!

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13 Battery Jars.
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18 Brakes, Air.
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43 Fire Escapes, Portable.
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57 Hose, Chemical.
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60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pump.
71 Pads, Pole Hole.
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91 Sprinkler Head Shut-Offs.
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93 Sprinkler Systems, Automatic, Foam.
94 Sprinkler Systems, Automatic Water.
95 Starters, Fire Apparatus, Automatic, Air.
96 Steam Fire Engines.
97 Tarpaulins & Fire Blankets.
98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
102 Traffic Clearing, Systems.
103 Triple Combination Pumping Cars.
104 Uniforms.
105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air.
108 Whistles, Fire Alarm, Steam.
109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

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Nos. .....

Nos. .....

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Nov. 25, 1926

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MORE EASILY HANDLED

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They do not freeze in winter, nor become tacky in summer. They are not subject to spontaneous combustion, nor to cracking where folded. One man can carry four up a ladder at one time.

Made in standard sizes. Write our nearest plant for samples and prices.

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The Worcester Fire Alarm Signal says "Fire." Its call is far-reaching and distinct, and because of the mechanical perfection in design and workmanship, harsh, objectionable screeches are eliminated.

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All moving parts are bronze or bronze bushed.
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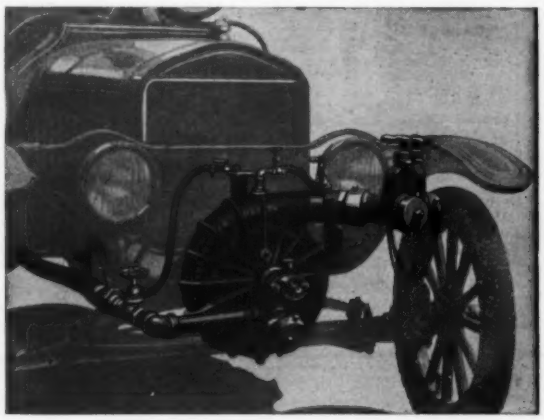

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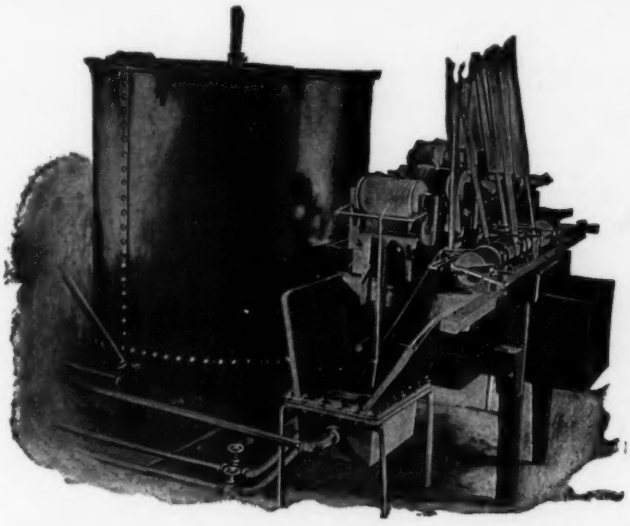

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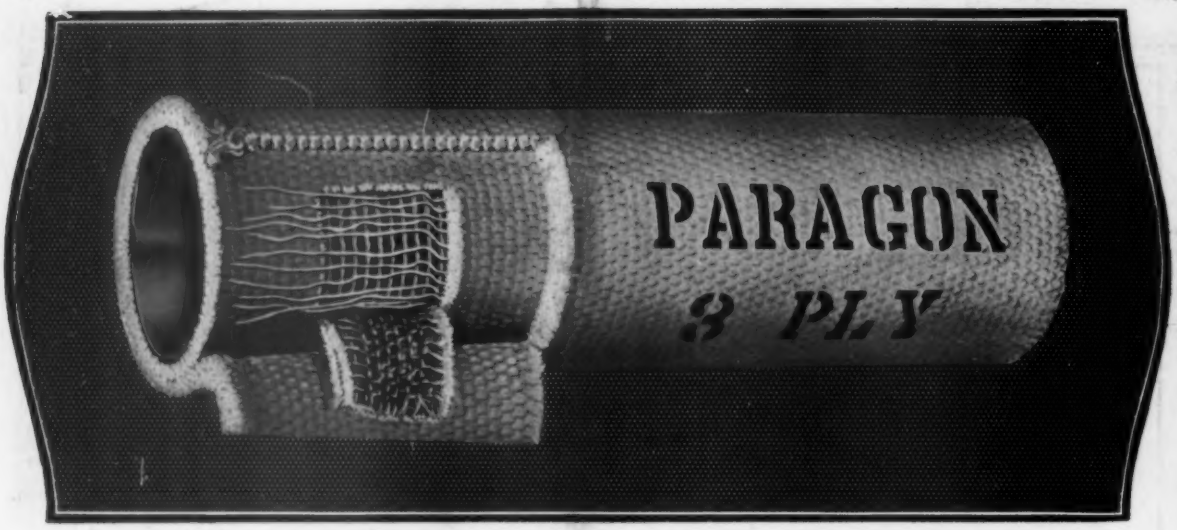

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